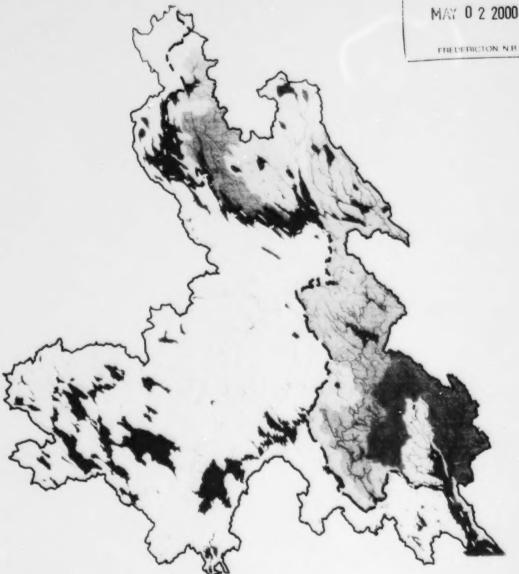
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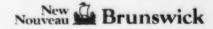


Future Water Quality in the St. Croix Watershed: A proposal for preliminary surface water classification under New Brunswick's Clean Water Act

prepared by

St. Croix International Waterway Commission March 2000

Funded by **New Brunswick Environmental Trust Fund** "Your Environmental Trust Fund at Work"





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## St. Croix International Waterway Commission

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in cooperation with

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funded by

New Brunswick Environmental Trust Fund
"Your Environmental Trust Fund at Work"

The St. Croix International Waterway Commission facilitates planning and action benefiting the resources, heritage, economy and way of life in the St. Croix River corridor of New Brunswick and Maine. It is a charitable, not-for-profit organization that provides tax deductible receipts for American and Canadian contributions. For more information on the Commission and the longterm management plan for the St. Croix International Waterway, please contact us:



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#### St. Croix International Waterway Commission March 2000

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## Overview

Water is the most fundamental natural resource: New Brunswick has abundant clean water now and this contributes directly to the quality of life, the economy and the environment in the province. To maintain these advantages in the future, the New Brunswick Clean Water Act establishes a framework for managing water quality and use through a variety of means. One of these is a water classification system that will categorize surface waters into quality classes and ensure their management according to the goals set for each class. The classification system will apply ultimately to all of New Brunswick's rivers, lakes and streams but is being piloted first in selected watersheds around the province. The St. Croix watershed is one of these.

The proposed classification program -- to be finalized in a Water Classification Regulation planned for adoption in 2000 -- establishes six classes for New Brunswick's surface waters, ranging from a highest quality class for drinking water supplies to an acceptable class for more heavily-utilized waters. Classifying waters will involve four essential steps:

- 1) Assessing water quality through field testing and historical data review
- 2) Identifying future use goals through public consultation and land use evaluation
- 3) Developing a local proposal for water classification, for consideration by the Department of the Environment
- 4) Finalizing and implementing classification through Ministerial Order

Between June 1999 and March 2000, the St. Croix International Waterway Commission led studies and consultations to develop a preliminary proposal for the future classification of the waters within the St. Croix watershed, a 1655 km² area of southwestern New Brunswick. This report summarizes that project and presents its results in the form of recommendations to the New Brunswick Department of the Environment.

The Department of the Environment is expected to review this report, conduct followup studies and consultations and, in due course, promulgate an Order that will classify all of the waters of the St. Croix watershed under a Water Classification Regulation.

# Water Quality and the Classification Concept

## The Importance of Surface Waters

New Brunswick relies heavily upon its rivers, lakes and streams to support the lives and livelihoods of its people.

★ Most New Brunswick communities depend upon surface waters for their municipal drinking water supply, thus avoiding the high cost and unpredictability of other alternatives

★ The majority of New Brunswick's primary industries rely upon free and abundant surface water to grow or process their products

★ Nearly one-fifth of the electricity used in New Brunswick is generated by water power; it is currently the province's least expensive and only sustainable energy source

★ The fish, wildlife and recreational opportunities that make New Brunswick a desirable place to live and vacation are sustained by clean water

As the use of New Brunswick's waters continues to grow along with its communities and businesses, the province wants to ensure that this resource is well managed so that its use by a few does not erase the benefits belonging to all, now and in the future.

#### What Influences Water Quality?

The nature of the water in rivers, lakes and streams is determined by many factors, all of which are important in assessing and managing water quality. Key among these are:

## Natural influences

Bedrock and surface geology are the most basic determinants of water character. As water flows from underground reserves or along land surfaces, it dissolves or transports elements from the rocks and soils that it passes. One example of this is water hardness: waters flowing through calcium and magnesium rich bedrock acquire mineral salts which cause residues in household pipes or laundry. Water can also acquire elements such as arsenic or iron from contact with bedrock that is naturally rich in these. Such impacts on water quality are common and occur in the St. Croix area.

Climate and weather affect both water quantity and quality. Under conditions of low rainfall and high temperatures, less water is available in streams and lakes to dilute existing pollution, bacteria flourish and algae increase. Conversely, heavy rains can cause runoff of soils, nutrients and bacteria which also affect water quality.

Natural biological processes have a significant effect on water. Common examples include: 1) decaying marsh vegetation and sunken logs release tannin that gives water a tea-like color; the decay process itself reduces dissolved oxygen; 2) shore vegetation moderates the rate of water runoff and creates shade that reduces the effects of summer heat; 3) wild animals raise

stream bacteria levels by defecating in or near the water. These and similar factors have led New Brunswick to incorporate the phrase "as naturally occurs" into its water standards, recognizing that waters vary in character and quality under natural conditions.

#### Human influences

Runoff from land activities (non-point sources) are now the most prevalent cause of water pollution. These occur virtually everywhere there is human activity and run a full gamut of sources, including the runoff of oils from roadways and nutrients from lawn fertilizers, the seepage from failed septic systems and soil erosion from land clearing. Many of the effects of non-point source pollution can be reduced through best management practices: New Brunswick will be encouraging such practices in its water quality strategy.

**Direct discharges (point sources)** are the "end of the pipe" sources that are readily associated with pollution. In most jurisidictions, including New Brunswick, stricter monitoring and standards are being applied to licensed discharges from industry and sewage treatment plants which contribute most of the fluid waste. This action is significantly reducing the total amount of pollution released to waterways.

Airborne pollutants -- the most noted of which are the nitrous oxides (NOx) which initiated the "acid rain" debate in the 1970s and mercury which has held the focus in recent years -- come to the Maritimes largely from coal-burning power plants and industries in the central United States and Canada but to a lesser extent are caused by car and waste stack exhausts from within the region. Airborne pollutants reach surface waters through rainfall or snow melt and can then, directly or through interactions, alter natural chemical and biological processes. Governments have taken some steps to reduce such emissions at their source, however momentum is building to act more decisively.

Watercraft pollutants also influence water character. Fuels, sewage and other substances that are inadvertantly or deliberately released by shipping traffic, recreational craft and other waterbased activities affect both fresh and marine water quality.

## A fluid situation

Because water is constantly in motion, pollution does not remain at its source. Winds, currents and tides carry water down a river, across a lake and far along tidal shores. For this reason, New Brunswick will implement water classification on a watershed basis, so that planning will take into account the quality objectives at the source and destination of traveling waters.

## **How is Water Quality Protected?**

## Legal Framework

Under common law, water is a public resource owned collectively by the people of Canada

and is administered by the government in that right. The **British North America Act** of 1867 devolves jurisdiction over fresh water management to the provinces while retaining jurisdiction over marine waters and selected uses (for example fisheries and navigation) to the federal government. Estuaries, the tidal waters where fresh and salt waters mix, fall less clearly into these jurisidictions. Waters which are mostly fresh are generally a provincial responsibility and those which are mostly salt a federal responsibility, however this dividing line varies with definition and the changing tides.

The Canada Water Act. (Chapter C-11, Consolidated Statutes of Canada) defines Canada's regulatory basis for managing national water resources, including their conservation, development and utilization. Its provisions include control of water pollution and also arrangements for federal/provincial and federal/foreign management of the quality of waters in mutually-specified areas. The Great Lakes water quality program is an example of the latter.

The New Brunswick Clean Water Act of 1989 (Chapter C-6.1, New Brunswick Revised Statutes) establishes the legal framework for managing and protecting all waters of the province, including surface, ground and well waters. Current Regulations under this Act that affect surface waters include the Watercourse Alteration Regulation (which guides water and shoreland uses), the Watercourse Setback Regulation (which protects designated drinking water supplies) and the Water Quality Regulation (which regulates licensed water discharges). A Water Classification Regulation to implement the surface water management provisions of the Act is proposed for adoption in 2000. This is described more fully in the section on New Brunswick's Water Classification Program.

## International Obligations

The Boundary Waters Treaty of 1909 obligates Canada and the United States to manage their shared waters, and the waters that flow to them, in a manner that does not disadvantage the other party. Much of the Treaty deals with water levels and flows, however Article IV provides that "the waters herein defined as boundary waters and waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other". The Treaty established the US/Canada International Joint Commission (IJC) and gave it authority over approvals of boundary dams and diversions and, when requested by the two federal governments, the authority to address other water issues. On such a reference, the IJC studied the St. Croix's water resources in 1955-1957. This study led, in ensuing decades, to the creation of an IJC St. Croix International Advisory Board on Water Pollution, IJC guidelines for dissolved oxygen and pH for the St. Croix boundary waters and IJC support for advances in wastewater treatment and fisheries restoration. The IJC's St. Croix board reported that water quality in the lower St. Croix was improved ten-fold between 1972 and 1986 alone, however the IJC retains the authority to take additional steps to maintain or improve the St. Croix's boundary water quality if deemed necessary.

Maine and United States jurisdiction begins at mid-channel on the international St. Croix and waters flow across this line without respect for nationality. Pollutants discharged on one side inevitably reach the other to cause quality management problems for both. Guided by its own water classification program (which began in 1954) and the U.S. Clean Water Act of 1972 and its later

revisions, Maine has taken considerable steps to improve and manage state waters. New Brunswick's water classification system draws heavily upon the Maine model and makes it possible to establish complementary standards for the shared boundary waters. Maine's current water quality classifications for its side of the St. Croix are given below.

Table 1. Maine water quality classification standards for state waters of the international St. Croix, at 1999.

| Boundary water segment                  | Maine water class | Comparable NB water class |
|---|-------------------|---------------------------|
| All lakes                               | GPA               | AL                        |
| River above Woodland Flowage            | A                 | A                         |
| Woodland Flowage to Calais head-of-tide | С                 | С                         |
| All tributaries above Milltown dam      | A                 | A                         |
| All tributaries below Milltown dam      | В                 | В                         |
| Calais head-of-tide to the Narrows      | SC                | С                         |
| Marine waters below the Narrows         | SB                | фа                        |

Maine's water classifications are next scheduled for review in 2002, at which time classification of the Woodland to Calais segment may be re-considered due to improved water quality.

#### New Brunswick's Water Classification Program

The New Brunswick Water Classification Regulation proposed for adoption in 2000 will establish the process for managing the province's surface waters to ensure that they will meet the quality goals set for them. Current and proposed uses will be taken into consideration in categorizing surface waters into six quality classes and the program will be applied on a watershed basis (i.e. all the waters that drain into the same river system) as a logical management unit. The proposed classes, their standards and management conditions are shown in Table 2. The steps of the water classification process are outlined in the section *Developing a Classification Proposal*.

New Brunswick's water classification program is a goal-oriented. It will be possible for residents to decide that a stream which currently meets Class C criteria should be categorized as Class B, and lay out a plan and timetable to achieve this. Conversely, a river segment that is currently Class A quality might be recommended as Class B to allow for anticipated future uses. The Water Classification Regulation will provide for both options. It will also allow for future changes in classification to reflect changing needs.

In preparation for the Regulation's adoption, the New Brunswick Department of the Environment has entered into partnerships with local groups in five watersheds to pilot the water classification process and to help in developing appropriate methods and materials for its delivery.

When the Water Classification Regulation becomes law, the classifications proposed within these watersheds will become eligible for early implementation. The Department of the

Table 2. Overview of the proposed New Brunswick Water Classification standards.

|  | =  |  |  | =  | = # >   | = 9  |
|--|--|--|--|--|---|--|
| Prohibited Activities                                      | release of a<br>contaminant; significant<br>withdrawals                                    | any activity not<br>permitted under the<br>Watercourse Setback<br>Designation Regulation                                 | release of new contami-<br>nants; continued release<br>of existing contaminants<br>unless AL is standard<br>met; new mixing zones  | release of a contaminant<br>unless A is standard<br>met; mixing zones  | release of a contaminant<br>unless B standard is met;<br>mixing zones unless they<br>meet minimum<br>standards  | release of a contaminant<br>unless C standard is<br>met; mixing zones unless<br>they meet minimum<br>standards                     |
| Trophic<br>Status<br>Standard<br>(lakes only)              | as naturally<br>occurs   | as naturally<br>occurs   | status stable<br>or changing<br>naturally:<br>free of algae<br>blooms that<br>impair use   | N/A  | NA  | N/A  |
| Aquatic Life<br>Standard                                   | as naturally occurs  | as naturally occurs  | as naturally occurs  | as naturally occurs  | supports all native<br>aquatic species, no<br>negative change to<br>biological<br>community   | supports all native<br>fish species, may<br>cause some change<br>to biological<br>community  |
| Dissolved Oxyen Standard Parts per million oxygen in water | as naturally occurs  | as naturally occurs  | coldwater species: >9.5 for early life stages, >6.5 for later life stages, warmwater species: >6.0 for early life stages, >5.0 for                                       | same as AL class,<br>plus : 80%,<br>saturation for tidal<br>waters   | same as A class   | same as A class  |
| Bacteria Standard  # r. coll/100ml of water sample         | as naturally occurs  | no e. coli or fecal coliform, <10 total coliform, <10% of samples in 30 days or 2 consecutive samples show any coliform. | as naturally occurs  | as naturally occurs  | <200 (geometric mean of min. 5 samples in a 30 day period). <14 for estuaries with identified shellfish beds  | <400 (geometric mean of min. 5 samples in a 30 day period). <14 for estuaries with identified shellfish beds                       |
| Summary Description  | Outstanding natural waters: Exceptional natural waterbodies, by nomination to the Minister | Designated drinking water<br>supplies:<br>Waters designated under the<br>Watercourse Setback Designation<br>Regulation   | All lakes not classed as O or AP: Suitable for freshwater aquatic life and primary contact activities (ex: swimming). Some impoundments may be exempted from this class. | Waters with excellent quality: Suitable for freshwater aquatic life, primary contact activities (ex: swimming) and other uses as long as the A standard is met | Waters with good quality: Suitable for freshwater aquatic life, primary contact activities (ex: swimming) and other uses as long as the B standard is met | Waters with acceptable quality: Suitable for freshwater aquatic life, secondary contact activities (ex: boating) and other uses as |
| Class  | 0  | ٩٧   | АL   | *  | 8   | 0  |

Environment will then begin to expand its involvement with interests in other watersheds to apply the classification program province-wide.

Table 3. Pilot watersheds for the New Brunswick Water Classification Program.

| Watershed   | Aren (km²) | NB region | Local coordinating entity                      | Year started |
|---|------------|-----------|--|--------------|
| Magaguadavic, Lepreau, New,<br>Digdeguash and Pocologan<br>Rivers (composite) | 3010       | SW        | Eastern Charlotte Waterways Inc.               | 1998         |
| Hammond River   | 433        | sw        | Hammond River Angling Assoc.                   | 1998         |
| Tabusintac River  | 717        | SE        | Tabusintac Watershed Association               | 1999         |
| Peticodiac River  | 2401       | SE        | Peticodiac Watershed Monitoring<br>Group       | 1999         |
| St. Croix River (N.B. side)   | 1655       | sw        | St. Croix International Waterway<br>Commission | 1999         |

#### **Everyone** is Involved

Because everyone affects and benefits from water quality, New Brunswick is committed to involving all in setting and meeting the province's water quality goals.

The earlier section on What Influences Water Quality? refers to how everyday actions change water quality. A later section on Local Goal-Setting indicates how residents and water users take part in selecting future water quality goals.

Ultimately, all will also be involved in maintaining water quality. While surface waters can often maintain or restore their quality under some pollution, setting longterm quality standards in the face of the growing demands on water use will come at some costs. These may be as simple as changing personal habits -- using less lawn fertilizer for instance -- or have greater implications such as precluding high-impact uses near some waters or requiring the upgrading of some pollution control facilities. Under the new regulation, it will be a provincial offence to use water or surrounding land in a way that (a) constitutes an activity prohibited under the regulation, (b) causes a waterbody to cease to meet its classification standard or (c) impedes progress toward achieving a classification standard set for a waterbody.

Setting water quality goals and adhering to them is a longterm commitment that deserves full public participation. After all, the benefits of clean water will be everyone's to enjoy.

## The St. Croix Watershed in New Brunswick

#### A Watershed Profile

The St. Croix watershed is the largest coastal river basin lying between the Saint John River system, primarily in New Brunswick, and the Penobscot River system, in Maine.

It is a transboundary waterway, with the U.S./Canada border located at mid-channel along its main course from source to mouth. Of its 4188 km² drainage, 2532 km² (60%) lies in Maine and 1655 km² (40%) lies in New Brunswick. The international Gulf of Maine extends outwards from this apex.

The system's boundary status brings aspects of its use under the purview of the governments of Canada, New Brunswick, Maine and the United States, as well as the International Joint Commission. In 1986, New Brunswick and Maine entered into an agreement to co-manage the boundary waters portion of the system for their mutual benefit and, to this end, have adopted a longterm comprehensive management plan for the boundary corridor and established the St. Croix International Waterway Commission to guide that plan's implementation.

The Maine portion of the watershed will not be included in this document except in passing reference. The following is information general to the St. Croix watershed in New Brunswick. Additional detail on specific sub-watersheds is presented in the *Findings & Recommendations* section.

#### Climate

The St. Croix is in a northern temperate climatic zone which experiences annual precipitation (rain and snow) in the general range of 100cm and an average annual temperature in the range of 5°C.

The heavier snowfalls and greater temperature ranges occur in the upper part of the watershed, which is removed from the coastline's moderating effects. Recent (1986-1997) weather records show the upper part of the watershed to have an average annual precipitation of 103.1cm, with the greatest share in August, November and May. The August rains, the result of a storm belt that stretches across the upper lakes, help to replenish lake levels in mid-summer. The lower portion of the watershed averages 104.7cm precipitation annually, the heaviest generally in November and May. (Source: U.S. National Weather Service cooperative station database records for Houlton #173944, representing the upper basin, and Woodland #179891, representing of the lower basin).

Temperature ranges also vary between the upper and lower basins, according to the same database for a 30-year record of 1961-1990:

#### Upper basin (represented by Houlton)

Average annual temperature: 4.3°C

Average monthly minimum temperature: low (January) -17.3°C high (July) 12.3°C Average monthly maximum temperature: low (January) - 5.2°C high (July) 25.7°C

Lower basin (represented by Woodland)

Average annual temperature: 6.1°C

Average monthly minimum temperature: low (January) -8.4°C high (July) 19.9°C Average monthly maximum temperature: low (January) -2.0°C high (July) 26.7°C

While local residents will recall recent summers as unusually hot and dry, the climate of Atlantic Canada has not matched the national warming trend over the last 50 years and in fact has cooled somewhat during that period (1996-1997 Canada Country Study, www.climatechange.gc.ca english html impacts.html). During the El Nino and La Nina global conditions of the past two years, this region has experienced less variation in average temperature and rainfall than many other areas of North America (NOAA National Climatic Data Center, www.ncdc.noaa.gov ol climate globalwarming.html).

#### Geology

The St. Croix watershed is located in the extreme southwestern end of New Brunswick, covering a 1655 km² area that extends in the north from the foothills of the vistigal Appalachian Mountain range above Fosterville in York County to the marine waters of Passamaquoddy Bay at St. Andrews in Charlotte County. Physiographically it is a subdivision of the New Brunswick Highlands. The basin falls visibly into two sections, upper and lower, joined at a 3 km wide waist (see Figure 1). Its provincial portion is the sixth largest watershed in New Brunswick, after the Saint John, Miramichi, Restigouche, Nepisiguit and Peticodiac watersheds in that order.

The bedrock of the St. Croix watershed reflects the area's ancient mountainous past, and appears in conspicuous bands running southwest to northeast roughly parallel to the coastline. Remnants of a 400 million-year-old mountain range form the calcium- and sodium-rich granite base that underlies most of the upper half of the watershed, with minor areas of heat and pressure metamorphosed sediments from this range along Monument and Mill Brooks and the north side of Skiff Lake. To the south of this granite mass lie calcium-rich sediments near the outlet of Spednic Lake which are a result of the prehistoric sea that once flowed inland from the Miramichi area.

The lower part of the watershed has a more varied underlay. The majority of the area north of Routes 3 and 730, and including Upper Little Ridge, is a continuation of the calcium-bearing sediments found at the base of Spednic Lake. Granite bedrock from ancient mountains re-appears in outcrops at Upper Mills, Barter Settlement, St. David Ridge, Tower Hill, Todd's Point and upper Bayside. Volcanic rock high in sulphide mineralization underlies the greater St. Stephen area, the Ledge, Hills Point and portions of Bayside. Surrounding these granitic and volcanic pockets are, to the north and west, 450-500 million year old marine sediments (from the Woodland Flowage to the Gallop Stream drainage); metamorphosed mountain sediments (at the Waweig drainage) and younger 400-350 million year old calcium-rich sediments (at lower Bayside and St. Andrews).

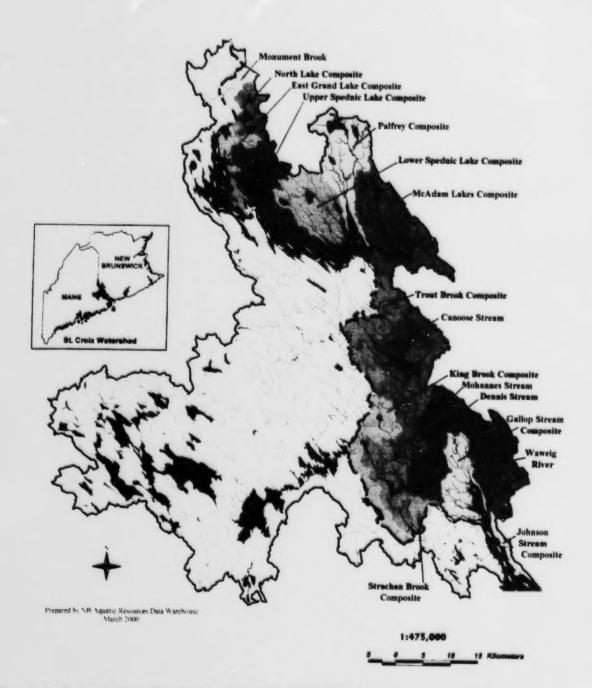


Figure 1. St. Croix watershed of New Brunswick and Maine, showing New Brunswick sub-watersheds in the preliminary study for provincial Water Classification. (Hydrography sources: Service New Brunswick and Maine Department of Environmental Protection.)

In terms of water quality, the calcareous (calcium-rich) character of much of the watershed's bedrock counteracts the effects of acid rain and acidic bogs to maintain a neutral pH preferred by most aquatic species. Waters that flow through areas of the metal-bearing sediments alongside granites are more prone to raised levels of arsenic, copper, zinc, other metals (including gold) and sulphates. The volcanic bedrock in the St. Stephen area is highly metallic, showing elevated amounts of arsenic, chromium, nickel, copper, zinc and base metals, as well as sulphates.

The surface geology of the watershed strongly reflects the effects of the last ice age in which, some 15,000 years ago, melting glaciers carved the St. Croix's lakes and valleys, ground rock into gravel and soils and deposited these in their wake. The glacial retreat occured in a southeast to northwest direction (roughly at right angles to the bedrock layers), orienting most flowing waters and lakes in this direction and creating the depressions that became the St. Croix's many bogs and wetlands.

Much of the St. Croix watershed is overlayed by Carleton shaly loam, (which has good drainage and fair-to-good suitability for crops and other vegetation) and small outpockets of Canterbury shaly loam (a poorly draining, unproductive soil).

In the upper watershed, these loams predominate along the boundary corridor but are replaced by productive, well-draining Caribou shaly loam in the inland portions of the upper reaches and low-productivity Pinder gravelly sandy loam (well-draining) or McAdam gravelly sandy loam (poorly-draining) around the McAdam lakes.

In the lower watershed, the departures from the Carleton and Canterbury shall loams are seen mostly on the lower St. Andrews peninsula, which is overlain by a well-draining, fairly productive Parleeville gravelly sandy loam, and in pockets in the Upper Mills/St.Stephen/West Oak Bay area where a productive, fair-draining Fundy silty clay is found.

In water quality terms, most of these soils have lower pH (3.5-4.0) and calcium levels near the surface due to leaching, but higher levels at depth. On the poorer draining soils, runoff from rain and snowmelt (and any characteristics these carry with them) is accelerated; the better-draining soils tend to hold more of this water, delaying and even mitigating some of its impacts.

## Demography

The St. Croix region is sparsely settled, having at the 1996 census just 15,698 residents in civil divisions that lie within or extend outward from the 1,655km<sup>2</sup> New Brunwick portion of the watershed. Only 16% of the population resides in the upper half of the watershed and the majority of this in McAdam, the only municipality there. Of the remainder in the lower part of the watershed, the majority live within 2km of the estuary waterfront and most in the two municipalities, St. Stephen and St. Andrews.

Additional information from the 1996 census is given in Table 4. Other features to note:

- The upper half of the watershed, in addition to its sparse population, has significantly higher reliance on primary resource-based occupations and more than double the level of unemployment compared to the lower half of the watershed. These figures have changed little from the 1986 or 1991 census, except in the Village of McAdam where unemployment has declined by over 8 percentage points in the last 10 years, due notably to recent business starts.
- The residents of coastal areas of the lower watershed have the highest average standard of living and generally the lowest unemployment. This may reflect a preference for place of residence rather than the location of work, as people in the lower watershed often commute. However unemployment in this area has declined significantly, from 2 to 22 percentage points depending upon civil unit, since the 1986 census and business starts and expansions are on the rise.
- The St. Croix population is slightly older than the provincial average. A comparison of the St. Croix and provincial populations by age category suggests that this is due to the longevity of residents aged 65 and older who live in the St. Croix area and, to a lesser extent, to an outflow of younger residents aged 25-54 who go elsewhere to find work.

#### Economy and Land Use

The upper watershed, with the exception of the Village of McAdam, is a combination of very small rural settlements and -- on North, East Grand and Skiff Lakes -- shorefront developments of seasonal or year-round homes. Nearly 90% of the land base is forest, managed primarily for commercial timber production. Residents in this area are employed largely in businesses in the nearby community of Canterbury (just outside the watershed), in public sector jobs or in the forest industry. The local population rises significantly in the summer as cottagers from larger communities outside the watershed take up seasonal residence.

Unpaved provincial highway and wood roads connect this portion of the upper watershed to the Village of McAdam in the south. McAdam is a small commercial center which has seen some resurgence in its economy through the recent development of manufacturing businesses and related trucking. Located on under-utilized highway and railway routes extending into the U.S. and seeking to restore a massive railway station that is a national historic site, the community hopes to continue to build upon its potential.

The lower watershed is similar in nature. Most of the land base is in commercial timber production, with a scattering of agricultural and other land uses, until reaching the urban and suburban areas along the coastline. This portion of the watershed has a good network of provincial highways and other paved roads which allow the population to be highly mobile: this and an improving economy have led to a transition away from the urban centers to live, if not to work. Benefiting the most from this trend have been the Parishes of St. Andrews (Chamcook) and St. Croix (Bayside) which have seen their populations increase by 27% and 14% respectively. Most of Chamcook and its population are located outside of the St. Croix watershed, however Bayside and other areas which have seen 2-4% population growth are in the St. Croix basin.

Table 4. Demographic profile of civil units lying in whole or in part in the St. Croix watershed, New Brunswick. From the Canada Census of Population for 1996. (Source: Statistics Canada's internet site www. statem ca english profil, extracted February 2000).

| civil unit       | area<br>(km²) | St. Croix<br>subwatersheds                                 | #<br>beople | # private<br>dwellings | аvегаде<br>аде | average | % unem-<br>ployment | # employed<br>1° industry | # employed<br>2° industry | # employed 3º industry |
|------------------|---------------|--|-------------|------------------------|----------------|---------|---------------------|---------------------------|---------------------------|------------------------|
| Municipality     |               |  |             |                        |                |         |                     |                           |                           |                        |
| McAdam           | 13            | McAdam   | 1,570       | 630                    | 40.4           | 960'91  | 183                 | 20                        | 115                       | 408                    |
| St. Stephen      | 12            | Strachan, Dennis   | 196't       | 2,015                  | 39.0           | 20,888  | 157                 | 40                        | 475                       | 1,630                  |
| St. Andrews      | 50            | Johnson  | 1,752       | 755                    | 42.7           | 24,431  | 8 01                | 20                        | 80                        | 710                    |
| Parish           |               |  |             |                        |                |         |                     |                           |                           |                        |
| North Lake       | 473           | Monument, North,<br>Upper/Lower Spednic,<br>Grand, Palfrey | 213         | 501                    | 45.2           | :       | 36 8                | 0                         | 01                        | 25                     |
| Canterbury       | 570           | Palfrey  | 209         | 210                    | 36.2           | 16,043  | 302                 | 40                        | 55                        | 140                    |
| McAdam           | 555           | Lower Spednic,<br>McAdam, Trout                            | 901         | 45                     | 41.1           | :       | 30.8                | 01                        | 25                        | 35                     |
| St. James        | 497           | Trout, Canoose, King,<br>Mohannes, Dennis                  | 1,398       | 490                    | 356            | 15,453  | 21.7                | 115                       | 091                       | 415                    |
| St. Stephen      | 104           | King, Moharmes,<br>Strachan, Dennis                        | 068*1       | 089                    | 35.3           | 18,984  | 15.9                | 09                        | 255                       | \$09                   |
| Dufferin         | 13            | Gallop   | 451         | 185                    | 41.5           | 18,238  | 13.2                | 10                        | 45                        | 205                    |
| St David         | 197           | Gallop, Waweig   | 1,641       | 610                    | 36.0           | 18,469  | 204                 | 105                       | 185                       | 490                    |
| St. Croix        | 76            | Waweig, Johnson  | 657         | 235                    | 33.9           | 24,403  | 183                 | 15                        | 06                        | 235                    |
| St Andrews       | 25            | Johnson  | 452         | 170                    | 37.1           | 23,732  | 8.3                 | 10                        | 40                        | 8                      |
| Total St. Croix* | 2.543         |  | 15,698      | 6,130                  | 38.3           | 19,781  | 17.0                | 495                       | 1,535                     | 4,963                  |
|                  | 200           |  | 718 133     | 272 915                | 361            | 20,755  | 15.5                | 25,990                    | 085'69                    | 256,680                |

Many of the civil units extend beyond the St. Croix watershed boundaries; numbers exclusive to the watershed are not available but would difer somewhat (primary) industry resource-based harvesting & agriculture, 2º (secondary) industry manufacturing & constri Many of the civil units extend beyond the St. Croix watershed boundaries, numbers exclusive to the watershed a
 Statistics Canada does not derive these figures for a survey population of this small size, calculation of average in

Statistics Canada does not derive these figures for a survey population of this small size; calculation of average income for the watershed excludes these civil units.

The Town of St. Stephen is a regional commercial center, located on a major highway at the Canada/U.S. border. Its residents are employed primarily in the commercial, transportation and public sectors and, with recent growth, in manufacturing. The town is home to a well-known candy making firm however the majority of its manufacturing employment is in wood-based products. The community hopes to continue to expand its involvement in this sector, maintain its other strengths and develop an active tourism base.

The Town of St. Andrews is a noted seaside historic resort with additional strengths in marine research and post-secondary education. Most of its workforce is employed in these areas and, recently, in the nearby aquaculture industry. An older average age base reflects an active retirement community. The town hopes to continue to build upon its three major focii while retaining its historic character.

Table 5 summarize the overall land use in the watershed. Land use information on a subwatershed basis appears in the *Findings & Recommendations* section of this document.

Table 5. Land use in the upper and lower portions of the St. Croix watershed.

| Land Use        | Upper Wa   | atershed | Lower Watershed |         |  |
|-----------------|------------|----------|-----------------|---------|--|
| Category        | Area (km²) | Percent  | Area (km²)      | Percent |  |
| Agriculture     | 2.87       | 0.4      | 43.65           | 4.9     |  |
| Forest          | 602.16     | 78.0     | 729.03          | 82.6    |  |
| Burn            | 0.01       | 44       | 0.04            | 60      |  |
| Gravel pit      | 0.33       | 44       | 2.06            | 0.2     |  |
| Mine/Quarry     | 0          | 99       | 0.31            |         |  |
| Industrial      | 2.51       | 0.3      | 6.45            | 0.7     |  |
| Rural Land Use  | 1.88       | 0.3      | 10,26           | 1.2     |  |
| Urban Land Use  | 1.75       | 0.2      | 6.77            | 0.8     |  |
| Park            | 3.92       | 0.5      | 0.05            | **      |  |
| Roads/Utilities | 5.37       | 0.7      | 15.53           | 1.8     |  |
| Rivers/Lakes    | 121.83     | 15.8     | 17.76           | 2.0     |  |
| Wetlands        | 29,35      | 3.8      | 51.04           | 5.8     |  |
| TOTAL ALL       | 771.98     | 100.0    | 882.95          | 100.0   |  |

Land use data from 1999 NB Dept. Natural Resources & Energy forest cover database and 1999 Service New Brunswick real property attribute database.

#### Land Ownership

While land use has remained relatively constant within the watershed, land ownership has changed dramatically in the last year. In May 1999, The Timber Company, a wholly-owned subsidiary of the Georgia-Pacific Corporation, sold all of its New Brunswick holdings -- including 780 km² or 47% of the St. Croix watershed -- to the Province of New Brunswick. This acquisition, combined with existing provincial holdings, made the province the dominant landowner within the watershed. Table 6 shows this precedence and the relative ownership by other interests.

Lands underlying waterbodies present a special case. These are generally the property of the province, as are coastal shorelands between the normal high and low water mark, but with some exceptions. For simplicity, all of these have been listed separately as submerged lands on this table, without distinction to ownership.

The Province is currently considering options for the forner Georgia-Pacific forest lands and in the interim is managing the area for timber harvest at a reduced cutting rate. Future uses of this

**Table 6.** Land ownership within the St. Croix watershed. Crown Land refers to land owned by the Province of New Brunswick under management of the Department of Natural Resources & Energy; land managed by other provincial departments is listed as Provincial Land - Other.

| Ownership                                   | Upper Watershed |             | Lower Watershed |            |
|---|-----------------|-------------|-----------------|------------|
|   | Area (km²)      | Percent (%) | Area (km²)      | Percent (% |
| Crown Land - Former Georgia-Pacific land    | 520.72          | 67.5        | 259.14          | 29.4       |
| Crown Land - Queen/Charlotte Timber Licence | 0               | 0.0         | 35.54           | 4.0        |
| Crown Land - York Timber Licence            | 14.85           | 1.9         | 0               |            |
| Crown Land - Provincial Park/Park Reserve   | 4.25            | 0.5         | 0.06            | 69         |
| Crown Land - Other                          | 0               | **          | 0.99            | 0.1        |
| TOTAL - CROWN                               | 539.82          | 69.9        | 295.73          | 33.5       |
| Municipal Land                              | 0.39            | 0.1         | 2.25            | 0.3        |
| Provincial Land - other                     | 0.17            |             | 3.22            | 0.4        |
| Federal Land                                | 0.02            | **          | 0.11            |            |
| Private Land - Industrial forest            | 56.92           | 7.4         | 11.72           | 1.3        |
| Private Land - Other                        | 51.99           | 6.7         | 551.07          | 62.4       |
| TOTAL - OTHER                               | 109.49          | 14.2        | 568.37          | 64.4       |
| SUBMERGED LANDS                             | 122.68          | 15.9        | 18.85           | 2.1        |
| TOTAL ALL                                   | 771.99          | 100         | 882.95          | 100        |

Land use data from 1999 NB Dept. Natural Resources & Energy forest cover database and 1999 Service New Brunswick real property attribute database.

major portion of the watershed will not be known until the Province resolves its intentions. A timetable for decision-making has not yet been set.

#### Other Water Planning Considerations

In 1993, at the request of the Province, the St. Croix boundary waters were designated a Canadian Heritage River -- the first such designation in Atlantic Canada and, to date, one of only five in this region. Retaining this national status involves implementing a heritage river management plan (this is the same St. Croix Management Plan developed in partnership with Maine) and protecting heritage resources such as water quality.

The St. Croix Management Plan commits New Brunswick and Maine to establishing complementary high water quality standards for the boundary waters and meeting these through ongoing water management programs. It also commits all waterway interests to active consultation and participation in management actions. To ensure that provincial water classifications adopted for the St. Croix boundary waters will best address all needs, primary water users on both the New Brunswick and Maine sides of the international St. Croix have been asked to contribute their views.

#### The St. Croix Sub-Watershed Planning Units

The St. Croix watershed is comprised of smaller drainages that are, in themselves, functional water quality management units. These sub-watersheds, individually or in composites, are simpler to describe and to present current findings for than is the entire watershed. These are shown in Figure 1 and Table 7 and are mapped and described further in the *Findings & Recommendations* section of this document.

Some waters of the basin were treated differently from the others in the water classification planning process. The St.Croix boundary waters were addressed as a separate management unit to reflect their shared, international status. Also, except for the waters upstream of Spruce Point on the mainstem and Hills Point on the Waweig, the waters of the St. Croix estuary (including Oak Bay) were excluded from provincial classification at this time as these waters are under federal jurisdiction.

## **Boundary Waters**

Addressed as a distinct management unit are the New Brunswick waters of: Monument Brook, North Lake, the Thoroughfare, East Grand Lake, Forest City Stream, Mud Lake, Mud Lake Stream, Spednic Lake and Palfrey Lake, Grand Falls Flowage, Woodland Flowage and all portions of the St. Croix River to Spruce Point, Dufferin Parish, on the tidewaters.

## New Brunswick Sub-Watersheds

The sub-watershed units that were delineated and used in this planning process are

## identified below.

Table 7. New Brunswick sub-watershed units used in the preliminary water classification process.

| Sub-watershed Unit Name   | Includes all waters draining to  |
|---------------------------|--|
| In the Upper Watershed    |  |
| Monument Brook            | Monument Brook   |
| North Lake Composite      | North Lake   |
| East Grand Lake Composite | East Grand Lake, Mud Lake, Forest City Stream, Mud Lake Stream                           |
| Upper Spednic Composite   | Spednic Lake west of the Musquash Flowage  |
| Lower Spednic Composite   | Spednic Lake between and including Musquash Flowage and Silas Cove                       |
| Palfrey Composite         | Palfrey Lake (includes Skiff, Grassy and LaCoote Lakes and their sub-drainages)          |
| McAdam Lakes Composite    | Diggity Stream (includes the McAdam Lakes chain)<br>Spednic Lake south of Diggity Stream |
| In the Lower Watershed    |  |
| Trout Brook Composite     | St. Croix River between Vanceboro dam and Canoose Stream                                 |
| Canoose Stream            | Canoose Stream   |
| King Brook Composite      | St. Croix River between Canoose Stream and Mohannes Stream                               |
| Mohannes Stream           | Mohannes Stream  |
| Strachan Brook Composite  | St. Croix River between Mohannes Stream and Dennis Stream                                |
| Dennis Stream             | Dennis Stream  |
| Gallop Stream Composite   | St. Croix River between Dennis Stream and Waweig River                                   |
| Waweig River              | Waweig River   |
| Johnson Cove Composite    | St. Croix River between Waweig River and Indian Point                                    |

# **Developing a Classification Proposal**

#### **Project Definition**

This project completed the first three steps of the proposed Water Classification Program:

- 1) Assessing water quality through field testing and historical data review
- 2) Identifying future use goals through public consultation and land use evaluation
- Developing a local proposal for water classification, for consideration by the N.B. Department
  of the Environment

Because the Water Classification Regulation has not yet been adopted, this represents a pilot study to develop 'preliminary' classification proposal for the St. Croix watershed. When the proposed Regulation becomes law, a further formal consultation will be completed prior to the final step of the Classification process:

4) Finalizing and implementing classification through a Ministerial Order

The major components of the three steps taken to date are described below. Each of these was required by the N.B. Department of the Environment and was developed and implemented in regular consultation with that agency.

## Mapping

Three computer-generated map series were developed to provide a visual reference and planning tool for classification and to give the public a better perception of the St. Croix watershed as a dynamic management area. Information assembled from these maps is summarized in various sections of this report.

ArcInfo GIS data layers for the map series were obtained from existing provincial databases and assembled by the N.B. Aquatic Resources Data Warehouse under contract to the Commission. The wall-sized maps and their GIS layers (except for select reserved data) are on file with the N.B. Department of the Environment's Environmental Quality Branch and hard copy maps are also on file at the Waterway Commission; some page-sized maps were generated for this document. All are described below.

## Watershed and sub-watershed definition

To identify the watershed, three poster-sized maps were developed from data layers obtained from Service New Brunswick (SNB) and, for the Maine side, the Maine Department of Environmental Protection. The first map is of the entire international St. Croix watershed at 1:150,000 scale, highlighting the New Brunswick sub-watershed units adopted for the classification study. A simplified, miniature version of this map is presented in Figure 1.

Two additional maps, at 1:60,000 scale, focus exclusively on the upper and lower halves

of the St. Croix watershed in New Brunswick to give additional detail on sub-watershed geography, drainage areas and water sampling sites.

#### Land Use

#### General Land Use

Current land use and land use patterns give an indication of where water quality might be affected by human activity. Projections of these, based upon local knowledge and past trends, can help in selecting water quality goals that take future development into consideration.

Using existing GIS data layers, two poster-sized maps (upper watershed and lower watershed) were developed at a scale of 1:60,000 to show land use, in the following categories:

Water Agriculture Urban land use
Wetland Gravel pit Rural land use
Forest Quarry/Mine Industrial

Road/Rail/Utility corridor

Computerized data for the categories in the first two columns was extracted from the N.B. Department of Natural Resources & Energy's 1999 forest cover inventory. Data for the categories in the last column (which all appear as 'Other' in the forest cover inventory) were developed from the Service New Brunswick (SNB) real property attribute files. While most of the land use categories are generally self-explanatory, some deserve further description:

The Industrial category includes properties listed and taxed under one of the 40 industrial property codes of the SNB real property attribute system, except those which fell into other categories listed above (ex: gravel pit, utility corridor, etc). Some of these lots are no longer used for industry-related purposes however they were mapped as such to coincide with the SNB listing. Added to this Industrial category were all rural and municipal landfill sites active in the last 30 years, which SNB lists inconsistently.

The Urban and Rural land use categories were developed to capture the full range of residential, business, institutional and similar uses that take up most occupied properties. The Urban grouping was applied within the boundaries of the three municipalities (McAdam, St. Stephen and St. Andrews) and the Rural category used in the remaining unincorporated areas.

The Agriculture category over-estimates significantly the amount of land in active agriculture, as the assignation is based solely upon aerial photography. The watershed contains many open or overgrown fields which are no longer used for agriculture but are nevertheless classed to this use by the forest cover inventory based upon their cleared appearance.

## Sources of primary water impacts

Specific activities such as sewage treatment plant discharges or road runoff affect water

quality on a localized basis. Identifying these and their effects is an additional aspect of water management planning.

Lists were compiled of primary point source ("end of pipe") and nonpoint source (runoff-related) influences on water quality, and also of the locations of petroleum storage and tanks and industrial and general dump sites, past and present. The 17 licensed point source discharges within the watershed, including Maine discharges that may affect the boundary waters, are listed in Appendix 2. Primary nonpoint source influences are listed in Appendix 3. The storage tank list is on file with NBDOE and the Commission but is not included in this document or on the maps.

Also reviewed were watershed projects that were registered under the province's Environmental Impact Assessment Regulation during the last five years, begin primarily industrial expansions and road or utility corridor developments.

Thee present and potential impact of all of these sources is considered in the Findings & Recommendations section.

#### Land Ownership

Land ownership gives a sense of the consistency and flexibility of future land use: management of public lands may be more predictable and potentially more restrictive than that for private lands.

Two poster-sized maps (upper watershed and lower watershed) were developed at a scale of 1:60,000 to show land ownership, divided into the following categories:

Crown Land - further categorized into former Georgia-Pacific land, Queen-Charlotte Timber Licence, York Timber Licence, Provincial Park/Park Reserve

Provincial Land - Other (e.g. held by departments other than Natural Resources & Energy)

Municipal Land

Federal Land

Private Land - Forestry industrial freehold

Private Land - Other

## Water studies

Water quality and water quality trends were examined by reviewing existing records and by collecting new field data.

#### Historic Data

Water quality data collected by various entities for New Brunswick and boundary water sampling sites during the period 1980-1999 was assembled for review. The following sources were used (listed alphabetically):

Environment Canada: 1980-1998 data for sampling sites throughout the watershed

Georgia-Pacific Corp.: 1995-1997 data for boundary lakes

ME Dept. of Environmental Protection: 1993-1998 data for boundary lakes

NB Dept. of Environment: 1980-1999 data for lakes and streams

St. Croix Estuary Project: 1994-1999 data for streams along the estuary

St. Croix International Waterway Commission: 1993-1998 data for boundary lakes

These data were used to make a general comparison of past and present test results for selected locations in the upper and lower portions of the watershed. While the historic data was too limited for statistical analysis, it generally showed that water quality in the upper watershed has remained consistently excellent and in the lower watershed is good and improving. The more recent data aided directly in the water quality assessments for this study.

Geological reference sources assisted in interpreting natural influences on water chemistry. Used particularly were N.B. Department of Natural Resources & Energy maps and reports on provincial bedrock geology, surficial geology and mineral occurances (1979-1984) and also Geological Survey of Canada stream sediment and water geochemical reconnaissance data (1991).

#### Current sampling

At the outset of the study, sampling sites throughout the watershed were selected in conjunction with the NB Department of the Environment (NBDOE) to reflect the water quality of the different stream drainages and lakes. As it was clearly not possible to test every water body, priority was given to the St. Croix River mainstem and major lakes, sites at the lower end of major tributaries (assuming good quality there would imply good quality upstream) and locations where activities suggested that water quality might be affected.

A total of 88 sites were sampled 1-5 times in the period June-October 1999. Included were 59 stream or river sites, 19 lake sites and 10 estuary sites. This was supplemented by data collected from five additional lake sites in 1998, using the same methodologies. During the year, exploratory sampling was also done for *e.coli* at four further sites on Billy Weston Brook and Dennis Stream. In all, 382 water samples were collected and analyzed for this water classification project.

[In addition to these assessments, the Commission's 1999 water program also included an ongoing international St. Croix watershed lake sampling program in cooperation with the Indian Township Tribal Government; monitoring of bacteria levels in water and clam samples for the conditional harvesting of the Oak Bay clam beds; collection of water samples during a spill incident in the main river; and coordination of an ongoing network of 13 volunteer lake monitors within the watershed.]

A list of the water classification sample sites and their sampling frequency is given in Appendix 1. These locations are identified in the sub-watershed reports in the *Findings & Recommendations* section of this document. Whenever possible, the sites were selected to correspond with historic sampling locations.

Water samples for flowing waters were collected just below the water surface and for lakes were sampled at four depths: sub-surface, secchi, mid-point and above bottom. NBDOE provided all sample bottles and laboratory analyses and the samples were collected and transported in accordance with NBDOE protocols.

In addition to the water samples, the following field data was collected at freshwater sites: water temperature (subsurface for streams, at 1m top-to-bottom depth intervals for lakes); dissolved oxygen (same frequency as temperature); local influences (water level, visible pollution, pertinent weather information, etc.) and -- for lakes only -- secchi depth (the depth to which a secchi disk can be lowered and still be visible). All of the above were collected consistent with NBDOE protocols with one exception: the lake secchi depth was observed with a Maine model II viewing scope, to give readings consistent with earlier baseline data.

At estuary sites, water samples were collected only for *e.coli* bacteria, as laboratory facilities were not available to test saline samples for the other parameters. Water temperature and salinity and general observations were also recorded.

A list of the freshwater test parameters is given in Appendix 4. A brief summary of laboratory and field methods appears in Appendix 5c, with futher detail available on request. Test results are provided for stream and river sites in Appendix 5a and lake sites in Appendix 5b. These have been entered in longterm water quality databases maintained by NBDOE and the Commission.

With few exceptions, tests for the sampled St. Croix waters showed excellent quality. Waters with exceptions are noted in the *Findings & Recommendations* section and in Appendix 7.

In addition to the water quality testing, additional information on dissolved oxygen levels was collected from the St. Croix River between Woodland and Upper Mills to evaluate the current effect of mill effluent on that parameter. On four separate occasions, all at low summer flow, dissolved oxygen and temperature were recorded at 23 stations along this river segment and the information, along with calculated percent saturation, was forwarded to water agencies and the Georgia-Pacific Corporation. On all runs and at all sites, the recorded dissolved oxygen levels and saturation levels met the proposed standards for New Brunswick Class A waters and the International Joint Commission guidelines for the St. Croix boundary waters.

As noted earlier, the proposed provincial Water Classifications are based upon criteria for e. coli bacteria, dissolved oxygen and aquatic life. The first two of these could be evaluated directly from historic and 1999 field studies. The third -- the Aquatic Life standard -- is still under development. During 1999, the Commission cooperated with NBDOE in assessments of aquatic macro-invertebrates ("bottom dwelling bugs") at nine sites in the St. Croix watershed. The information from these assessments, together with similar data from other pilot watersheds, will contribute to the development of provincial profiles of macro-invertebrate populations typical of waters in the various classification categories. The results of these studies are on file with NBDOE.

Pending the development of the aquatic life profiles, evaluations for the aquatic life standard for the St. Croix and other pilot studies have been based upon water chemistry and visual observations.

#### Local goal-setting

The water classification process combines information on current water quality (what is present now) with local expectations for land and water use (what is likely in the future) to resolve a realistic classification level that can meet many interests over the longterm. It also seeks local commitment to maintain each waterbody's classification standard once this is agreed upon and adopted.

In 1990, the Waterway Commission carried out extensive consultations within the St. Croix watershed and with government, both in New Brunswick and in Maine, to develop a provincial and state mandated longterm Management Plan for the boundary waters corridor. In this process, good water quality and water management ranked as the highest priorities by waterway residents, users and managers. Their views were formalized in policies of the Plan to set longterm water quality standards (Policy #2) and manage waters to maintain these standards (Policy #4).

Following development, this Plan went through extensive review at the local and governmental levels and was, in 1994, formally approved for longterm implementation by New Brunswick and Maine. New Brunswick also submitted the same plan to the federal-provincial Canadian Heritage Rivers Board as a management commitment to secure the river's formal designation as a Canadian Heritage River. Through these agreements and additional attention by the Canada/US International Joint Commission, effective management for good water quality within the St. Croix boundary waters has become a formal, voluntarily-adopted goal of New Brunswick and others.

Consistent with the St. Croix Management Plan, since 1990 the Commission has worked extensively with local interests and various government agencies on water quality monitoring and improvement projects along the boundary waters and elsewhere within the watershed. In these projects and in general consultations, groups and individuals have consistently stressed the importance of high water quality to their section of the St. Croix. This interest has led to a variety of cooperative, water-related programs, including those mentioned in the third paragraph of the Current sampling section, above.

For this water classification project, public consultations were undertaken beginning in June 1999 and extending through March 2000. These consultations are on-going: during the remainder of 2000 the Commission will continue to work with local interests to refine the classification studies and recommendations made to date and, in due course, the N.B. Department of the Environment will complete a formal public process before adopting St. Croix water classifications under Regulation.

To date, local goal-setting has been pursued by the following means:

Direct consultations (correspondence and/or meetings) were held during the project with the municipalities, Local Service District Advisory Committees, major companies and landowners (including the provincial government), local members of the N.B. Federation of Agriculture, lake and estuary organizations, and recreation and conservation groups. A list of these is given in Appendix 6.

General consultations (public sessions) were held across the watershed in March 2000 at Fosterville, Canterbury, McAdam, Scotch Ridge, DeWolfe, St. Stephen, Oak Bay and Bayside. These meetings were preceded by a series of newspaper articles on the water classification program and public notices of meeting dates. The sessions included visual presentations and handouts on St. Croix classification and gave individuals the opportunity for direct or mail-in input. Means to reach the Commission were well publicized and everyone was encouraged to respond. A total of 86 people attended these meetings or sent in their views.

The results of these consultations are incorporated into the Findings & Recommendations section of this document.

#### Proposal development

Drawing upon the information gathered in the current studies and public consultations, and a decade of experience in St. Croix resource and management issues, the Waterway Commission developed this proposal for preliminary water classification for the St. Croix watershed. The classification recommendations contained in this report were reviewed with local parties through the consultation process and, the Commission believes, accurately reflect the views of the participants.

# Findings & Recommendations for Preliminary Classification

#### Introduction

Between June 1999 and March 2000, the St. Croix International Waterway Commission carried out assessments of water quality, land and water use affecting quality, and trends and views regarding future water quality within the St. Croix watershed in order to develop for the New Brunswick Department of the Environment a preliminary proposal for the classification of St. Croix waters under a proposed Water Classification Regulation. This is the first step in a future formal classification process that will begin when the Regulation is adopted.

The proposed water classifications (see Table 2) are based upon standards for e. coli bacteria, dissolved oxygen, maintenance of aquatic life and, in the case of lakes, maintenance of trophic (nutrient) level. As noted in the section on Developing a Classification Proposal, field testing was used to assess the quality of many waters within the watershed that either represented the quality of individual sub-drainages or were believed likely to be affected by nearby land or water uses.

E. coli and dissolved oxygen testing provided direct measurements for the first two of these standards. As the province is still developing a formal measurement process for the aquatic life standard, in this project this was assessed based upon water chemistry and visual observations of aquatic habitat. Trophic levels were assigned based upon mid-summer phosphorus, nitrogen and chlorophyll a values obtained in field studies and upon fish species recorded by the Department of Natural Resources & Energy's Fish & Wildlife Branch.

The following pages present findings and recommendations in three sections: those applying to the Water Classification program or St. Croix watershed as a whole, those applying to the boundary waters and those applying to the 16 New Brunswick sub-watersheds.

## **General Findings & Recommendations**

The majority of the St. Croix watershed enjoys excellent water quality due, in large part, to its extensive and largely commercial forestlands. Only a few waters in the lower, more urban areas yielded test results that do not meet Class A criteria at this time. Two areas of the watershed lie in designated drinking watersheds and will automatically received Class AP designation.

Details of these findings are noted in the sections that follow and in Appendix 7.

## Non-point Source Management

While all but one of the St. Croix's point source discharges is in the lower reaches of the system (see Appendix 2), activities that cause non-point effects on water quality are ubiquitous

throughout the watershed (Appendix 3). Fortunately, many of these effects are easily reduced through preventative steps taken in planning or implementation, collectively termed "best management practices" or BMPs. A brief summary of some of these BMPs is given in Appendix 8.

The non-point source effects on water quality in the St. Croix watershed are typical to all of New Brunswick. The most common of these arise from roads and parking areas; shoreland practices related to residential development, timber harvesting or farming; inadequate home septic systems and former disposal sites. These, overall, have a significant impact on provincial water quality.

In the last decade, considerable progress has been made by the major forestry companies and the Department of Natural Resources & Energy in applying BMPs to reduce the effects of forestry practices on water quality. Equal attention is needed, by government and the public, to address other nonpoint sources.

General Recommendation: New Brunswick recognize that the reduction of non-point source pollution can directly benefit the province's economy and environment, and initiate a specific non-point source/BMP action program to obtain this longterm benefit.

#### Point Source Management

One of the primary criteria for provincial water classification is the level of *e.coli* bacteria, a health hazard that correlates principally to sewage pollution. However, the province does not have a standard or a discharge limit for this bacteria in licenses for the sources which contribute most of this pollutant.

**General Recommendation:** The New Brunswick Department of the Environment establish limits for *e. coli* in point source discharge licences and make available funding to assist with facility upgrading to comply with these limits.

## Water Classification Studies & Implementation

New Brunswick is simultaneously developing a Water Classification Regulation and piloting aspects of its future implementation in five watersheds. The general guidelines for longterm program delivery are evolving through this development process. In the interim, pilot watersheds are pursuing mapping, consultation and recommendation avenues that are exemplary, but inconsistent.

General Recommendations: The New Brunswick Department of the Environment move quickly to set standards for the assessment and consultation aspects of classification development within provincial watersheds, so that these will join seamlessly in the province's longterm regulatory and management process. The Department also develop an operational framework for future water monitoring and action plan delivery to engage partners in implementing the classification program.

#### **Boundary Waters**

Many of the province's boundaries are located over water shared with a neighboring province or state. One-sided management of the quality of such boundary waters is impractical and ultimately unsuccessful, as pollutants flow freely across them. The N.B. Clean Water Act recognizes that cooperative management is desireable and provides the authority for the province to enter into agreements with others, including other governments, for water quality management.

General Recommendation: The New Brunswick Department of the Environment include, as an integral part of its Water Classification Program, consultations and cooperation with the governments of shared waters in establishing complementary classification and quality management initatives for its boundary waters. This would include collaboration with the State of Maine on boundary portions of the St. Croix and Saint John Rivers and with the Province of Quebec on the Restigouche River.

#### Protection of St. Croix Water Quality

People contacted in this study indicated that maintaining, if not improving, current water quality was very important to the St. Croix region. Many talked about ensuring that future development respected the existing quality, and felt that this was very achievable in most cases; in fact such a policy is already in effect on the Maine side of the watershed.

However, the proposed N.B. Water Classification Regulation intends to provide an option for changing the classification of waters not only upward, but downward. The latter could reduce the overall effectiveness of the classification program in protecting quality within the St. Croix system.

St. Croix Recommendation: New Brunswick carefully consider a non-degradation policy for the St. Croix watershed and consider implementing this by permitting re-classification to a higher standard but not a lower standard in the N.B. Water Classification Regulation in these waters.

## Estuarine Waters

New Brunswick has stated its intention to include estuary (tidal) waters as well as fresh waters in the Water Classification program over the long term. As noted in the Classification Concept section, the dividing line between estuarine waters of provincial and federal jurisdiction is difficult to define. This can be overcome, in the interest of good management, through cooperation between levels of government.

This study proposes classification of the tidal St. Croix and Waweig River waters to locations consistent with other NB DOE regulations or with the discernible river mouths. These recommendations are based upon common sense and local land management objectives, and would mesh consistently with the future classification of the remaining St. Croix tidwaters.

St. Croix Recommendation: The New Brunswick Department of the Environment include in its

initial classification for the St. Croix watershed the tidal waters of the St. Croix River to Spruce Point and the tidal waters of the Waweig River to its mouth.

St. Croix Recommendation: The Province of New Brunswick engage the Government of Canada in the cooperative classification and management of water quality in the St. Croix estuary, consistent with the New Brunswick Clean Water Act and the Canada Water Act.

#### **Outstanding Waters**

The proposed Water Classification Regulation provides for the selection and special management of a class of Outstanding Natural Waters (O Class) which represent the natural types of waters found in the province or are unique in some way. Local interests nominate lakes or streams to this category and, if accepted by a special advisory panel and the Minister of the Environment, these are designated as O Class and then managed to maintain the qualities for which they are recognized.

This study did not assess St. Croix waters for potential Outstanding classification, however there are certainly lakes and streams within the watershed that have representative or unique features. As the Water Classification program becomes more defined, local interests are encouraged to explore options for some O Class nominations.

# St. Croix Boundary Waters



Total drainage area: 133.5 km<sup>2</sup>

Principal settlements: In New Brunswick: Fosterville, Forest City, St. Croix, Little Ridge, Upper Mills, St. Stephen, The Ledge, Bayside, St. Andrews. In Maine: Orient, Weston, Danforth, Forest City, Vanceboro, Baileyville, Baring, Calais

Principal waters: Monument Brook, North Lake, East Grand Lake, Forest City Stream, Mud Lake, Mud Lake Stream, Spednic Lake, Palfrey Lake, St. Croix River (including mainstem flowages and tidewaters)

#### Description:

From the source of Monument Brook to Passamaquoddy Bay, the boundary waters of the St. Croix system flow nearly 180 km through lakes, river course, flowages and tidewaters. New Brunswick waters join with those of Maine at the depth of channel, which meanders unpredictably between either shore. As explained in earlier sections, these waters engender special management considerations due to their international status and, on the New Brunswick side, their Canadian Heritage River designation.

The boundary waters have been used extensively for log driving, waste dilution and power production and show some effects of each. Low head dams at the outlets of East Grand and Spednic Lakes which once controlled flows for log drives continue to widen the existing lakes and manage water for flood control, fisheries and power production. Three larger dams widen the river at Grand Falls, Woodland and Milltown as they generate power.

Above the Woodland Flowage, the boundary waters have no point source discharges and nonpoint impacts are limited to those from residential development, mostly on North and East Grand Lakes. Water records dating back more than 30 years suggest near pristine quality, although there is some indication that development nodes may now be having localized impacts. Shoreland zoning provisions in Maine, and since 1995 for the St. Croix only in New Brunswick, are designed to buffer these waters from future land uses. The upper St. Croix River flows through commercial forestland, with significant development setbacks. Logs from earlier drives still mark the river bottom in many places; these and the marshes which drain to the river contribute color to the water.

Between the Woodland Flowage and the tidewaters below St. Stephen, the river receives the outfalls of 10 licensed point source discharges and additional municipal and industrial storm drains (see Appendix 3). Major investments in pollution reduction on the Maine side have significantly improved the water quality over the last 25 years. Much of the sawdust that once lined the river bottom has now flushed to the tidewaters.

The boundary waters corridor includes one provincial ecological reserve (the Grassy Islands) and six locations included in the provincial list of environmentally significant areas (East Grand Lake, Hinkley Point, Loon Bay, Clark Point, Grand Falls, Spragues Falls), and a number of bald eagle nesting sites. The river supports a small run of Atlantic salmon, a species which is nearing threatened status in Canada, and one of the province's few riverine populations of smallmouth bass. East Grand Lake holds one of the province's few self-supporting populations of lake trout.

#### Current status:

| Segment*          | Principal human<br>uses        | Principal water quality influences | Water test highlights** 1998-1999   |
|-------------------|--------------------------------|------------------------------------|---|
| Monument<br>Brook | Recreation                     | marshes, forestry                  | 4 sites: Has higher values for color, alkalinity, hardness, sulphates, arsenic, chromium, calcium, iron & manganese due to bedrock & marshes. |
| North Lake        | Recreation,<br>shoreline homes | marshes, residential               | 2 sites: same as above, mesotrophic   |

| Segment*   | Principal human<br>uses                                | Principal water quality influences                                      | Water test highlights<br>1998-1999  |
|--|--|---|---|
| East Grand<br>Lake   | Recreation, shoreline homes                            | residential   | 4 sites: underground springs reduce effects seen upstream, oligotrophic   |
| Mud Lake   | Recreation   |   | I site: mesotrophic   |
| Spednic &<br>Palfrey Lakes                                 | Recreation   | marshes, forestry   | 4 sites: alkalinity & calcium lower,<br>nitrogen higher than upstream due to<br>natural causes. mesotrophic   |
| St. Croix R.,<br>Vanceboro<br>dam to Wood-<br>land Flowage | Recreation, power generation                           | marshes, forestry,<br>sunken logs                                       | 4 sites: color increases along the course due to marshes & logs   |
| St. Croix R.,<br>Woodland<br>Flowage to<br>Milltown dam    | Waste assimilation,<br>power generation,<br>recreation | industrial &<br>municipal outfalls, ur<br>sunken logs                   | 5 sites: Flowage retains logs & sediments affecting habitat. River to Milltown shows some effects of industrial, urban & natural discharges. Conductivity, sodium and potassium higher than upstream.       |
| St. Croix R.,<br>Milltown dam<br>to Spruce<br>Point        | Waste assimilation,<br>power generation,<br>recreation | municipal outfalls,<br>urban streams, road<br>runoff, snow dump-<br>ing | 3 sites: shows notable effects of point and nonpoint discharges from St. Stephen and Calais, historic sawdust & industrial sediments line the tidewater bottom. Elevated e. coli due to municipal outfalls. |

lake segments include outfall stream

\*\* see Appendices 5a, 5b and 7 for additional information

## Future goals:

Existing land and water use patterns are expected to continue. Commercial forestry is expected to predominate the shores of most of these boundary waters. Further residential development, and the conversion of summer residences to year-round homes, is anticipated on North, East Grand, Mud and Palfrey Lakes, near the outlet of Spednic Lake and at Loon Bay. Additional residential development, downtown expansions and a new international highway crossing are expected in the greater St. Stephen and Calais areas. All licenced discharges are expected to remain active, with ongoing improvements to effluent quality.

Consistency is critical to water quality goal-setting for the boundary waters and is a primary policy of the longterm management plan which New Brunswick and Maine adopted for the St Croix. The field studies and consultations for this study support New Brunswick's classification of the St. Croix boundary waters in a direct match to their classification in Maine, with one exception: the river segment from Woodland Flowage to the Milltown dam best qualifies for Class B status in New Brunswick but is currently rated as Class C in Maine. Maine's rating was reviewed last in 1994, prior to major improvements in water pollution management in this river segment, and is due to be reviewed next in a statewide process in 2002. It is essential for longterm management that New Brunswick and Maine reconcile classification of this segment at that time.

### Recommended preliminary classification:

Class A for all flowing waters above Woodland Flowage.

Class AL for North, East Grand, Mud, Spednic and Palfrey Lakes.

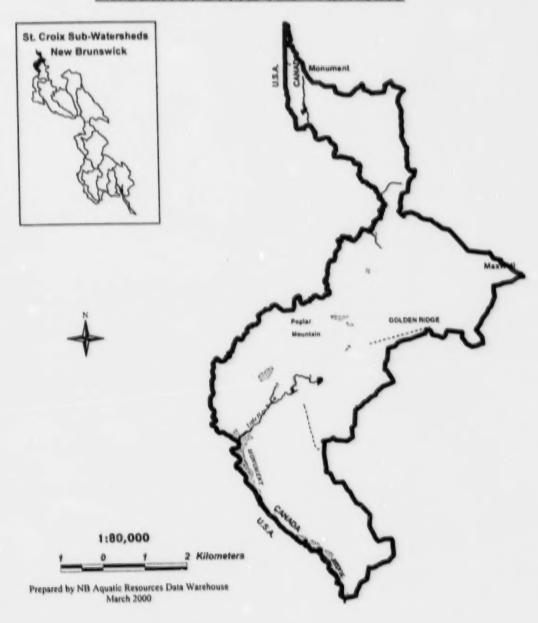
Class C for the St. Croix River from the Milltown dam to Spruce Point.

Formal classification of the St. Croix River from Woodland Flowage to the Milltown dam be reserved pending resolution of a compatible classification with Maine by the state's next classification review.

#### Action:

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations and apply shoreland zoning provisions to future development. *Ongoing*.
- ★ Set mixing zones for licensed discharges. On adoption of the Water Classification Regulation.
- New Brunswick resolve with Maine a compatible classification of the Woodland Flowage to Milltown dam river segment; in the interim the NB Dept. of Environment manage these waters to maintain existing quality. By 2003.
- ★ Institute a road and parking area BMP program in St. Stephen to reduce road runoff and snow removal impacts on water quality. By 2002.
- ★ Engage lake shoreowners in a residential BMP program. By 2003.
- ★ Make capital improvements to St. Stephen's wastewater system to reduce e. colibacteria and other pollutant discharges from treatment plants and storm drains. By 2010.

# Monument Brook Sub-Watershed



Total drainage area: 33.1 km2 Principal settlements: None

Principal waters: Little Hay Brook

### General description:

This subwatershed is almost exclusively forest land, managed for commercial harvest, and wetland.

#### Current status:

#### Principal land uses:

Forest (90%), wetland (9%)

### Principal land ownership:

Crown (75%), corporate forestry interests (17%)

## Principal water quality influences:

Point source: none

Nonpoint source: forestry

#### Water quality:

Sampled in 1999 at three sites [MON1, MON 1A, MON2A] on the boundary waters only. Some results slightly elevated for alkalinity, total organic carbon, arsenic and chromium -- all due to natural causes (bedrock and wetland). All tests results met Class A criteria.

### Future goals:

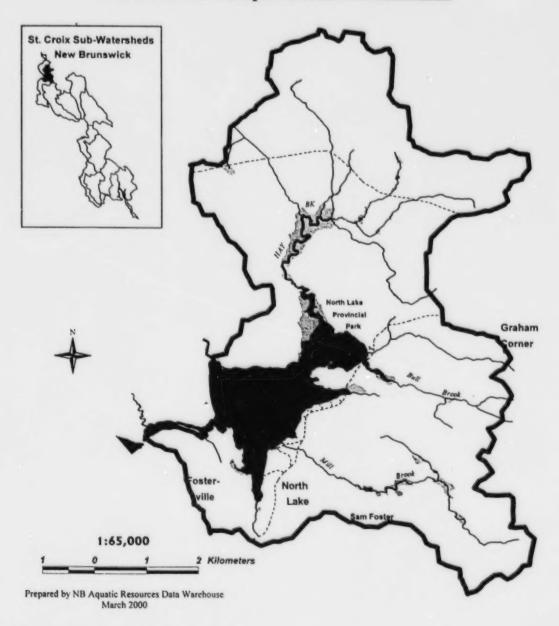
Commercial timber production is envisaged as the continuing principal land use. The majority of the sub-watershed has been staked for potential gold mining but the quality of the ore relative to recent finds outside the watershed makes this likelihood remote; if undertaken this mining would be underground rather than open pit, thus reducing site impacts.

# Recommended preliminary classification:

Class A for all waters in the Monument Brook sub-watershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Apply the province's Environmental Impact Assessment process to any mining development. As warranted.

# North Lake Composite Sub-Watershed



Total drainage area: 46.0 km<sup>2</sup>

Principal settlements: Fosterville, North Lake

Principal waters: Hay Brook, Bull Brook, Mill Brook

### General description:

North Lake and its immediate shoreline are discussed under Boundary Waters. Most of this subwatershed is forest land, managed in large part for commercial harvest. Rural residences, some with farm fields, are scattered along Route 122.

#### **Current status:**

#### Principal land uses:

Forest (91%), wetland (5%)

#### Principal land ownership:

Crown (85%), private small holdings (14%)

### Principal water quality influences:

Point sources: none

Nonpoint sources: forestry, roads, rural residential

#### Water quality:

Sampled in 1999 at two sites [HAY1, NMILL1]. All tests results met Class A criteria.

#### Future goals:

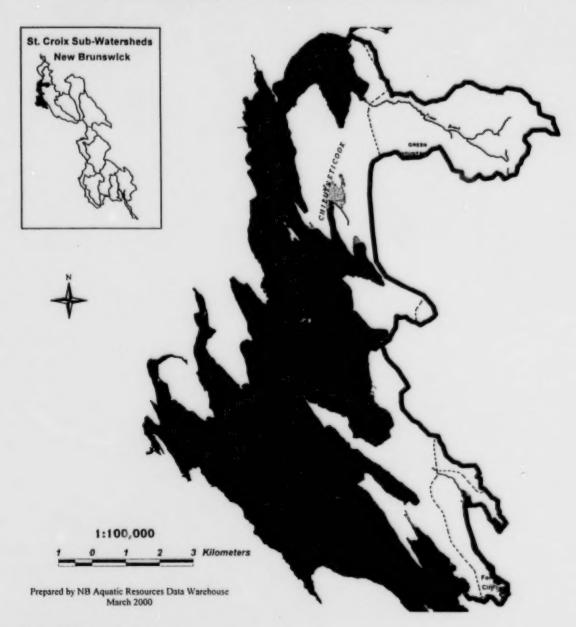
Commercial timber production is envisaged as the continuing principal land use. In time, residential development along Route 122 may increase but this would be at a slow pace. Much of the upper end of the sub-watershed has been staked for potential gold mining but the low quality of the ore relative to other recent finds outside the watershed makes this likelihood remote; if undertaken this mining would be underground rather than open pit, thus reducing site impacts.

# Recommended preliminary classification:

Class A for all waters in the North Lake Composite sub-watershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Increase BMP use in road maintenance and residential development. By 2002.
- ★ Apply the province's Environmental Impact Assessment process to any mining development. As warranted.

# East Grand Lake Composite Sub-Watershed



Total drainage area: 67.2 km<sup>2</sup>

Principal settlements: Fosterville, Green Mountain, Pemberton Ridge, Forest City

Principal waters: Trout Brook

#### General description:

East Grand Lake and its immediate shorelands are discussed under Boundary Waters

Most of this subwatershed is forest land, managed in large part for commercial harvest. Rural residences, some with farm fields, are scattered along Route 122 and the Forest City Road. Fosterville, at the top of East Grand Lake, and Forest City, at the outlet of the lake, are the most densely settled locations.

A closed rural dump on Route 122 drains toward Trout Brook, another closed rural dump on the Forest City road drains to the Mud Lake boundary waters. Ducks Unlimited impounds a wetland at Balm of Gilead Cove on East Grand Lake, for duck habitat.

#### Current status:

#### Principal land uses:

Forest (94%), wetland (3%)

### Principal land ownership:

Crown (67%), private small holdings (33%)

## Principal water quality influences:

Point sources: none

Nonpoint sources: forestry, roads, rural residential, closed dump

#### Water quality:

Sampled in 1999 at one site [EGTR1]. One elevated *e. coli* result obtained, believed to be of natural causes. All other test results met Class A criteria.

#### Future goals:

Commercial timber production and limited residential development are seen as the principal future land uses.

# Recommended preliminary classification:

Class A for all waters in the East Grand Lake Lake Composite sub-watershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Increase BMP use for road maintenance and residential development. Test dump sites periodically for potential leaching problems. By 2002.

# Upper Spednic Lake Composite Sub-Watershed



Total drainage area: 164.4 km²

Principal settlements: Pemberton Ridge

Principal waters: Pirate Brook, Mosquito Brook

Spednic Lake and its immediate shoreline are discussed under Boundary Waters.

Nearly all of this subwatershed is forest land, managed for commercial harvest. Rural residences, some with farm fields, are scattered along the Forest City Road in the northwest corner of the drainage; a primary haul road traverses the upper portion.

#### Current status:

#### Principal land uses:

Forest (95%), wetland (3%)

## Principal land ownership:

Crown (93%), private small holdings (7%)

#### Principal water quality influences:

Point sources: none

Nonpoint sources: forestry, roads

## Water quality:

Sampled in 1999 at two sites [SMED1, PIR1]. All test results met Class A criteria.

#### Future goals:

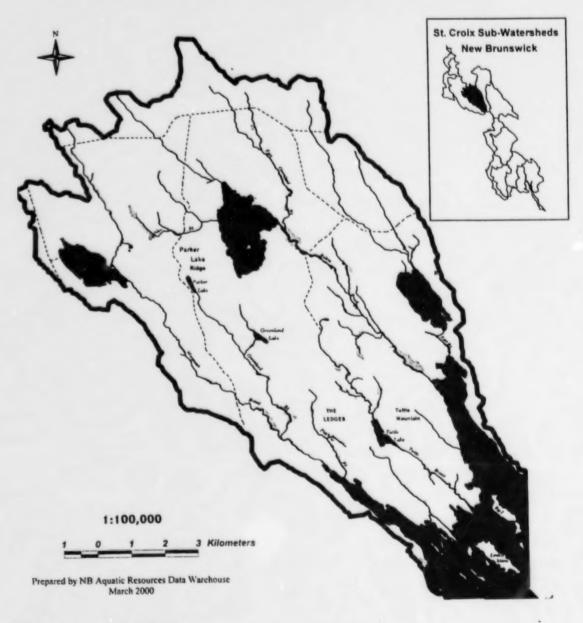
Commercial timber production is envisaged as the principal future land use.

#### Recommended preliminary classification:

Class A for all waters in the Upper Spednic Lake Composite sub-watershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Increase BMP use in road maintenance. By 2002.

# Lower Spednic Lake Composite Sub-Watershed



Total drainage area: 125.9 km<sup>2</sup> Principal settlements: None

Principal waters: Musquash Lake, Musquash Brook, Tuttle Brook, Bolton Lake, Bolton Brook,

East Brook Lake, East Brook, Greenland Brook

Spednic Lake and its immediate shoreline are discussed under Boundary Waters.

This subwatershed is almost exclusively Crown forest land, managed for commercial harvest. A primary haul road traverses the upper portion. A small number of camps are found on Bolton Lake.

#### Current status:

#### Principal land uses:

Forest (95%)

#### Principal land ownership:

Crown (99%)

### Principal water quality influences:

Point sources: none

Nonpoint sources: forestry

#### Water quality:

Sampled in 1999 at three stream sites [MUSQ1, EBRK1, BOLT1] and one lake site [BLTN1]. East Brook [EBKR1] showed lower alkalinity than most St. Croix waters but this is judged to be of natural causes (bedrock). All test results met Class A or AL criteria.

Water and/or fisheries studies on Musquash, East Brook and Bolton lakes indicate that these are mesotrophic (the last of these being high mesotrophic). The trophic status of the smaller lakes in this sub-watershed is unknown.

## Future goals:

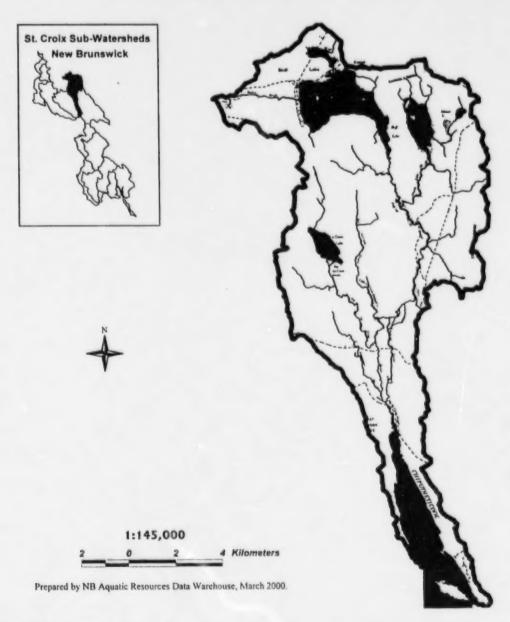
Commercial timber production is envisaged as the principal future land use.

# Recommended preliminary classification:

Class AL for all lakes and Class A for all other waters in the Lower Spednic Composite sub-watershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Increase BMP use in road maintenance. By 2002.

# Palfrey Lake Composite Sub-Watershed



Total drainage area: 138.7 km<sup>2</sup> Principal settlements: Skiff Lake

Principal waters: Skiff Lake, Palfrey Stream, Mud Lake, Grassy Lake, Grassy Lake Brook, LaCoote Lake, Big LaCoote Stream, Little LaCoote Stream, Dungarvon Brook

Palfrey Lake and its immediate shorelands are discussed under Boundary Waters. The majority of the Palfrey subwatershed is commercial forestland, with the exception of the Skiff Lake shoreline which has a traditional small-lot development of xxx seasonal and year-round residences along its north and west shores. The subwatershed is crossed by Route 122 near the headwaters, a major haul road near its base and an unpaved highway/haul road on the east.

Skiff Lake and Grassy Lake are listed among the province's environmentally significant areas. Palfrey and LaCoote streams provide landlocked salmon spawning habitat in their upper reaches for their respective lakes and at their lower ends for fish from Palfrey Lake.

#### Current status:

#### Principal land uses:

Forest (93%), wetland (4%)

## Principal land ownership:

Crown (52%), corporate forestry interests (42%), private small holdings (7%)

## Principal water quality influences:

Point sources: none

Nonpoint sources: forestry, shorefront residences at Skiff Lake

## Water quality:

Sampled in 1999 at one stream site [PAL1] and in 1998 at one lake site (SKIF1]. On some occasions Palfrey Stream [PAL1] showed total organic carbon levels higher than average for the St. Croix, which are attributed to natural causes (wetlands). All test results met Class A or AL criteria.

Water and/or fisheries studies indicate that Skiff and LaCoote Lakes are oligotrophic and Grassy Lake is mesotrophic. The trophic status of two smaller lakes in this subwatershed is unknown.

# Future goals:

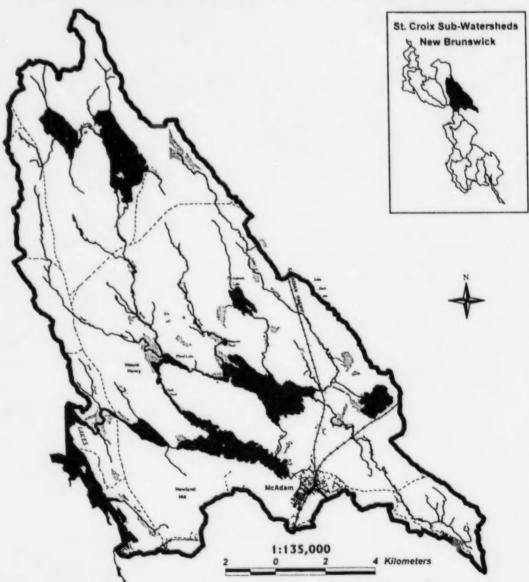
Commercial timber production within the watershed and waterfront residences on Skiff Lake are seen as the continuing principal land uses.

# Recommended preliminary classification:

Class AL for all lakes and Class A for all other waters in the Palfrey Composite Subwatershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations.
- ★ Increase BMP use in road maintenance. By 2002.
- ★ Engage Skiff Lake shoreowners in a residential BMP program. By 2002.

# McAdam Lakes Composite Sub-Watershed



Prepared by NB Aquatic Resources Data Warehouse, March 2000

Total drainage area: 197.0 km<sup>2</sup>

Principal settlements: McAdam, St. Croix

Principal waters: Dead Brook, Sixth Lake, Fifth Lake, North Brook, Pleasant Brook, Thompsons Lake, Thompsons Brook, Little McAdam Brook, McAdam Brook, Foster Lake, White Beaver Brook, Modsley Lake, Colter Brook, Third Lake, Wauklahegan Lake, First Lake, Diggity Stream, Casey Brook

This is the largest sub-watershed in the St. Croix drainage. It includes a chain of eight inter-connected lakes and extensive wetlands nestled within commercial forestland, all of which drain to Spednic Lake via Diggity Stream, plus minor brooks which empty directly to the lower end of Spednic Lake downstream of Diggity. A major roadway (Route 4), an active rail line and the Village of McAdam lie at the southern end of this sub-watershed, near Wauklahegan Lake. A discontinued rail line extends northward from McAdam along the west side of the drainage and an unpaved highway and a number of larger haul roads cross various sections. A closed municipal dump on Route 4 lies near White Beaver Brook.

Diggity Stream and its associated wetlands are included in the provincial list of environmentally significant areas. Modsley Lake is one of two St. Croix lakes that has two outlets (one to Third Lake and another to Wauklahegan). A dam at the outlet of Third Lake helps to maintain the second outflow, which assists with water circulation at the east end of Wauklahegan Lake where there is a municipal outfall, a campground and residences. Two other small dams impound a short section of North Brook and maintain a large pond behind McAdam's historic railway station.

#### **Current status:**

Principal land uses:

Forest (90%), wetland (6%)

Principal land ownership

Crown (90%), private and municipal small holdings (7%)

Principal waters quality influences:

Point sources: licenced discharge from municipal wastewater treatment plant Nonpoint sources: forestry, roads, rural residential, urban, closed dump

Water quality:

Sampled in 1999 at five stream sites [DEAD1, THIRD1, WBEAV1, MCAD1, DIGY1] and three lake sites [SIXTH1, FIFTH1, MODS1]. Sampled in 1998 at two lake sites [WAUK1, WAUK2]. McAdam and White Beaver Brooks [WBEAV1, MCAD1] showed above-average color, total organic carbon and iron and below-average alkalinity and pH, reflecting the characteristics of the extensive bogs which they drain. All test results met Class A or AL criteria.

Water and/or fisheries studies on Sixth, Fifth, Modsley, Wauklahegan and First lakes indicate that these are mesotrophic (the first two being high mesotrophic). The trophic status of the other lakes in this sub-watershed is unknown.

# Future goals:

Commercial timber production within the watershed and municipal and industrial activities near the east end of Wauklahegan Lake are envisaged as the principal future land uses. Some additional lakefront cottage development can be anticipated.

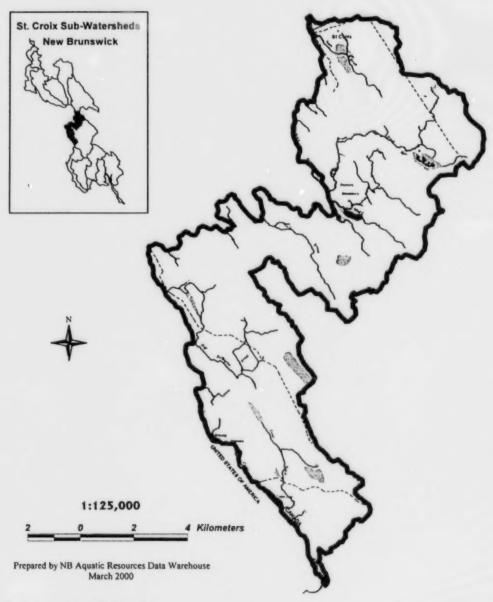
# Recommended preliminary classification:

Class C for discharge stream from McAdam wastewater treatment plant (outfall to mouth); Class AL for all lakes and Class A for all other waters in the McAdam Lakes

Composite sub-watershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Maintain the flow of Colter Brook to Wauklahegan Lake to aid in lake circulation. Ongoing.
- ★ Establish a mixing zone for the McAdam treatment plant discharge. On adoption of the Water Classification Regulation.
- ★ Increase BMP use in road maintenance and urban development. Test dump sites periodically for potential leaching. By 2002.
- ★ Develop an industrial BMP plan with the larger McAdam businesses which lie near wetlands or streams. By 2003.
- ★ Make capital improvements to McAdam's wastewater system to reduce treatment plant overflows after significant rainfalls. By 2015.
- ★ Manage any future development bordering on, or draining to, Wauklahegan Lake to minimize impacts on nutrient levels. Apply BMPs to any residential development on other lakes. As warranted.

# **Trout Brook Composite Sub-Watershed**



Total drainage area: 92.6 km<sup>2</sup> Primary settlements: St. Croix

Primary sub-drainages: Sears Brook, Trout Brook (Porters Meadows), Mud Lake, Halls Brook, Rolf Rollingtier Brook, Trout Brook (Loon Bay)

This composite sub-watershed encompasses a number of smaller streams and wetlands which drain to the upper St. Croix River between the Vanceboro dam and the Canoose sub-watershed. It is almost exclusively utilized as commercial forestland. Outside of limited shorefront development along the boundary waters (addressed under that section) the area is marked only by occasional camps or residences along the Loon Bay and Beaconsfield roads and Route 630, which lie along the edge of the drainage, and by haul roads.

#### **Current status:**

Principal land uses:

Forest (90%), wetland (7%)

Principal land ownership:

Crown (93%), private small holdings (7%)

Principal water quality influences:

Point sources: none

Nonpoint sources: forestry, roads

Water quality:

No sites were tested within this sub-watershed.

### Future goals:

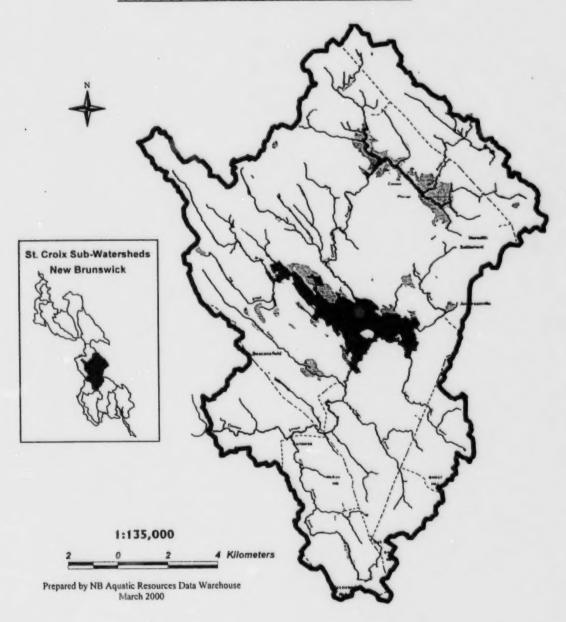
Commercial timber production is envisaged as the principal future land use.

## Recommended preliminary classification:

Class AL for Mud Lake and Class A for all other waters in the Trout Brook Composite sub-watershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Increase BMP use in road maintenance. By 2002.

# Canoose Stream Sub-Watershed



Total drainage area: 194.1 km<sup>2</sup>

Principal settlements: Canoose, Oak Hill, Andersonville, Meredith Settlement

Principal waters: Canoose Stream, Canoose Flowage, Goat Brook, Little Goat Brook, Sandy

Brook, Green Brown Brook, Shaws Brook

This is the second largest sub-watershed in the St. Croix drainage, consisting of two large, impounded wetlands (Canoose Flowage and Upper Canoose Flowage) and a number of small streams which drain to the Canoose Stream and then to the St. Croix River. A major roadway (Route 630) crosses the top of the sub-watershed to the east, other rural roadways cross the south and east sides and a haul road skirts the north border.

Commercial forestry is the primary activity, although rural residences and some small farms are found along the roadways. Much of this sub-watershed is included in the provincial list of environmentally significant areas, in four separate listings (Three Brooks Marsh, Canoose Flowage, Andersonville Bog and Canoose Stream). Canoose Stream is home to a provincially-rare species of freshwater crayfish and a new species of dragonfly first identified in 1997.

A water control dam impounds Canoose Flowage and two Ducks Unlimited structures raise the waters of the Upper Canoose Flowage and upper Green Brown Brook.

#### Current status:

### Principal land uses:

Forest (86%), wetland (11%)

### Principal land ownership:

Crown (93%), private small holdings (7%)

### Principal water quality influences:

Point sources: none

Nonpoint sources: forestry, roads

## Water quality:

Sampled in 1999 at two stream sites [CAN1, CAN2] and in 1998 at one lake site [CNOSE1]. All test results met Class A or AL criteria.

Water quality and fisheries studies indicate that Canoose Flowage borders between mesotrophic and eutrophic status. It has higher values for many water quality parameters due to the natural influences of marshes and bedrock.

# Future goals:

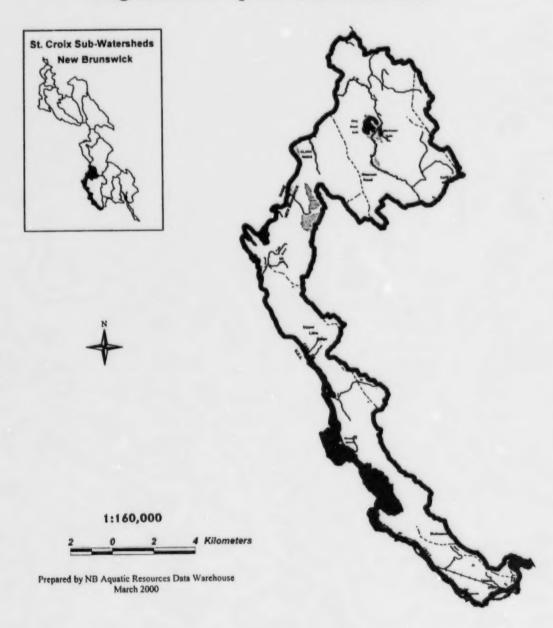
Commercial timber production is envisaged as the continuing principal land use. Residential development is expected to continue along Canoose Stream and the main roadways.

# Recommended preliminary classification:

Class AL for Canoose Flowage and Class A for all other waters in the Canoose Stream sub-watershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. *Ongoing*.
- ★ Increase BMP use in road maintenance and residential development. By 2002.
- ★ Implement management measures to protect resources identified in the environmentally significant areas listings. By 2003.

# King Brook Composite Sub-Watershed



Total drainage area: 90.7 km<sup>2</sup>

Principal settlements: Basswood Ridge, Little Ridge, Upper Mills Principal waters: King Brook Lake, King Brook, Ash Brook

This composite sub-watershed includes all waters draining to a 40km section of the St. Croix River between the Canoose and Mohannes sub-watersheds. The upper third of this sub-watershed is characterized by lowlands and marshes, predominated by King Brook Lake and King Brook. After Grand Falls, there is a shift to the height of land and short streams of Little Ridge area, continuing to Upper Mills. A number of rural roadways skirt portions of this drainage, providing a focus for rural residences and some small farming and blueberry ground. At the lower end of the sub-watershed, the community of Upper Mills and a section of active rail line lie along the St. Croix River.

King Brook Lake, which is impounded by a Ducks Unlimited dam, is included on the provincial list of environmentally significant areas.

Land ownership and use patterns begin a transition in this sub-watershed which will predominate in the lower section of the St. Croix system: most of the land is privately owned and a small but growing percentage is used for activities other than forestry.

#### Current status:

## Principal land uses:

Forest (91%), wetland (4%), agriculture (3%)

## Principal land ownership:

Private small holdings (68%), Crown (32%)

## Principal water quality influences:

Point sources: none

Nonpoint sources: forestry

# Water quality:

Sampled in 1999 at one site [KING1], with test results meeting Class A criteria. King Brook Lake was not sampled nor was its trophic level assessed.

# Future goals:

Commercial timber production is envisaged as the principal future land use. Rural residential development is expected to continue along Rte 725 and agriculture (principally small farming and blueberry growing) is anticipated to remain at current levels. Within the next few years a new international highway crossing may be sited in the lower section of this sub-watershed and recent gold exploration may lead to mining developments, however the potential impacts of these, if any, cannot be anticipated at this time.

# Recommended preliminary classification:

Class AL for King Brook Lake and Class A for all waters in the King Brook Composite sub-watershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Increase BMP use in road maintenance, residential development, agriculture. By 2002.
- ★ Apply the province's Environmental Impact Assessment process to any highway or mining development. As warranted.

# Mohannes Stream Sub-Watershed



Total drainage area: 125.0 km<sup>2</sup>

Principal settlements: Mohannes, Little Ridge, Burnt Hill, Barter Settlement, Scotch Ridge,

Pomeroy Ridge

Principal waters: Kendricks Lake, Potters Lake, Mohannes Stream, Huckleberry Brook, Meadow

Brook, Hoodleys Brook, Stuart Brook

This sub-watershed, like the Dennis, Gallop and Waweig drainages to the east, originates in the granite and granite-sediment remains of an ancient mountain ridge and flows through marshlands, forest, old farmland and rural residential settlements to the St. Croix River. Rural highways and roadways criss-cross the Mohannes Stream and its tributaries at intervals, but rarely parallel them -- as a result limited development has occurred immediately adjacent to these waters. However two closed municipal dumps are located within the watershed, both in proximity to streams.

Kendricks Lake and the portion of Mohannes Stream between Routes 735 and 740 are included on the provincial list of environmentally significant areas. The lower sections of Mohannes Stream provide habitat for an exceptional number of dragontly species.

#### Current status:

Principal land uses:

Forest (90%), agriculture (3%), wetland (3%)

Principal land ownership:

Private small holdings (78%), Crown (20%)

Principal water quality influences:

Point sources: none

Nonpoint sources: forestry, rural residential, roads, agriculture, closed dumps

Water quality:

Sampled in 1999 at three stream sites [MOH1, MOH2, MOH3]. These show higher levels of aluminum, arsenic, iron, sulphates and zinc, all attributable to bedrock influences. All test results met Class A criteria.

The trophic status of the lakes in this sub-watershed was not assessed.

# Future goals:

Commercial timber production is expected to remain as the primary land use. Rural residential growth is expected to accelerate along road corridors and agriculture (principally small farming) is anticipated to remain at current levels. Within the next few years a new international highway crossing may be sited in the lower section of this sub-watershed and recent gold exploration may lead to mining developments, however the possible impacts of these, if any, cannot be anticipated at this time.

# Recommended preliminary classification:

Class AL for all lakes and Class A for all other waters in the Mohannes Stream subwatershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Increase BMP use in road maintenance, residential development and agriculture. Test dump site periodically for potential leaching. By 2002.
- ★ Apply the province's Environmental Impact Assessment process to any highway or mining development. As warranted.

# Strachan Brook Composite Sub-Watershed



Total drainage area: 15.4 km<sup>2</sup>

Principal settlements: Milltown, St. Stephen, Mayfield

Principal waters: Strachan Brook, Doodle Brook, Tan House Brook

This composite is the smallest and most densely developed sub-watershed in the St. Croix system. It encompasses short streams draining to the St. Croix River between the Mohannes and Dennis sub-watersheds, over a land base that varies from rural forestland to the urban and industrial sections of St. Stephen, the St. Croix's largest municipality. A major East Coast highway that passes through the lower section is scheduled to be re-routed through the middle of the sub-watershed in the future; an active rail line bisects the area now.

The streams in this sub-watershed show influences of the metal-laden volcanic bedrock in the St. Stephen area. The largest streams have also been influenced by development. Strachan Brook runs through uninhabited field and woodland outside of St. Stephen but has its source at the foot of a large, recently-closed municipal landfill. Doodle Brook flows through the St. Stephen industrial park, urban residential neighborhoods and an active rail line, before discharging through a small marsh to the St. Croix -- receiving the outfall of a number of municipal storm drains en route. Tan House Brook also runs through industrial and urban residential properties, receiving licenced discharges of industrial cooling water and municipal wastewater (the latter from the Milltown treatment plant) and the leachate of a closed industrial dump site.

#### Current status:

Principal land uses:

Forest (55%), urban (22%), industrial (11%)

Principal land ownership:

Private small holdings (87%), Crown (7%), municipal (4%)

Principal water quality influences:

Point sources: licenced discharges from a municipal wastewater treatment plant and an industrial cooling water line, municipal storm drains

Nonpoint sources: urban and industrial development, roads, closed dumps

Water quality:

This was sampled in 1999 at three sites: Doodle Brook [DOOD2] at low flow and Tan House Brook [TAN1, TAN2] at low and high flow for e. coli and high flow for other parameters. Both streams show increased values for calcium, iron, magnesium and conductivity that can be attributed to bedrock influences. Doodle has elevated ammonia and turbidity which may be due to human influences. Tan House has elevated levels of aluminum, naturally-occuring, and increased levels of potassium, nitrate, nitrogen and ammonia which can be attributed primarily to human impacts. Bacteria levels at both Tan House sites well exceeded Class C criteria at high flow, especially at the site below the treatment plant, which bypasses its excess inflow at such times.

Strachan Brook was not sampled.

# Future goals:

Increased industrial and residential development will occur around Doodle and Tan House Brooks and likely extend to Strachan Brook. A major highway corridor will continue to grow around St. Stephen, across this sub-watershed.

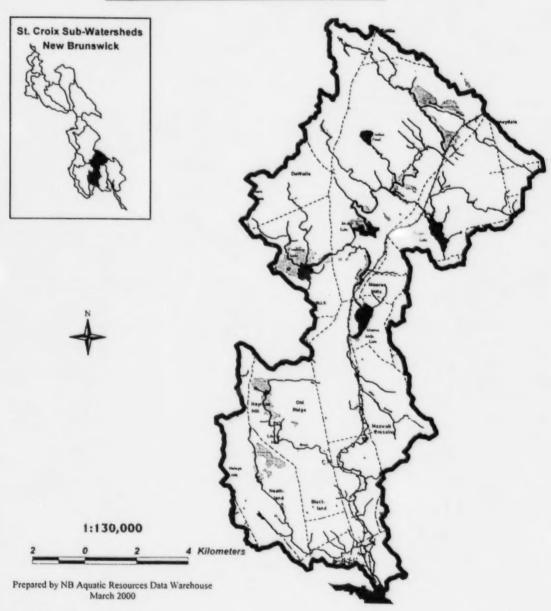
#### Recommended preliminary classification:

For Doodle Brook, Class C from the Bell Subdivision to the mouth. For Tan House Brook, Class C from St. Stephen Drive (or the future Highway 1) to the mouth. Class B for all other waters in the Strachan Brook Composite sub-watershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Develop a rehabilitation and Best Management Practices (BMP) plan for Doodle Brook to restore more natural character through the industrial park and reduce stormwater impacts in lower sections. By 2002.
- ★ Increase BMP use in road development and maintenance. Test dump sites periodically for potential leaching. By 2002.
- ★ Make capital improvements to St. Stephen's wastewater system to eliminate bypassing by the Milltown treatment plant. By 2010.
- ★ For Tan House Brook, redirect dump leachate into the municipal wastewater system for treatment when municipal wastewater infrastructure is upgraded. By 2010. Maintain brook shade cover. Ongoing.
- ★ Apply BMPs to future residential and infrastructure developments in this sub-watershed.

  As warranted.

# **Dennis Stream Sub-Watershed**



Total drainage area: 135.1 km<sup>2</sup>

Principal settlements: St. Stephen, Heathland, Old Ridge, Maxwell Crossing, Moores Mills,

DeWolfe, Honeydale, St. David Ridge, Baillie

Principal waters: Malkeson Brook, Dunham Brook, Foster Lake, Middle Lake, Cranberry Lake,

Moores Mills Lake, Bush Brook, Billy Weston Brook

The Dennis Stream sub-watershed reflects both rural and urban uses. Historically it supported forestry and small farming but this has been shifting gradually toward business and residential development along the major roadways, notably Routes 3 and 750, as an extension of the greater St. Stephen area. These highways and an active rail line run nearly the full length of the drainage, the latter paralleling Dennis Stream for much of its course.

The Town of St. Stephen depends upon the upper two thirds of this sub-watershed for its drinking supply. As a result, land and water uses in this portion of the drainage are managed for this purpose and will automatically receive Class AP status in the water classification program. Residential, business and small farming activities predominate along main roadways in this area. Ducks Unlimited dams impound Cranberry and Middle Lakes and other small structures expand marshlands immediately below these. Closed rural dumps are located near the waters of Billy Weston Brook below St. Stephen Drive and near Dennis Stream above Moores Mills Lake.

The lower third of the watershed includes areas of urban and commercial development as well as field and forest. Most impacted by human activity is Billy Weston Brook, which is affected by runoff from street storm drains, a shopping mall, a main highway, a gas station, a road maintenance depot and a number of businesses within a ½km segment near its mouth. Dennis Stream itself has felt the influence of increased residential and business development and, in 1999, the in-progress relocation of a major highway.

Dennis Stream supports a sea-going run of gaspereau and a small, historic run of Atlantic salmon, a fish which is nearing endangered status in Canada. A bog in the Baillie Settlement area is included on the provincial list of environmentally significant areas.

#### **Current status:**

#### Principal land uses:

Forest (80%), agriculture (8%), wetland (7%)

#### Principal land ownership:

Private small holdings (88%), Crown (10%)

#### Principal water quality influences:

Point sources: municipal storm drains

Nonpoint sources: urban, roads, rural residential, agriculture, closed dumps

#### Water quality:

Sampled in 1999 at three primary sites on the mainstem (DEN1, DEN2, DEN5] and two primary sites on Billy Weston Brook [BILL1, BILL2], plus three *e. coli* exploratory sites on these waters.

The lower reaches of Billy Weston Brook showed notably elevated values for 21 of 30 tested parameters -- including metals, nitrates, sulphates and bacteria -- which were not evident in upstream samples. All of these have probable sources in road, business and urban impacts within a short stream segment. Samples taken at the mouth of Dennis Stream appeared to show the residual effects of the Billy Weston inflow for six of these parameters and failed to meet Class A criteria for *e. coli* on two of five occasions. Samples taken above the Billy Weston inflow met Class A criteria in all instances.

The trophic status of the lakes in this sub-watershed was not assessed.

#### Future goals:

In the upper part of this sub-watershed, rural land use for forestry, small farming and homes will continue to predominate. Business and residential development is expected to increase particularly along Routes 3 and 750. Above Maxwell Crossing, where the Town of St. Stephen draws its municipal water supply, the highest priority will continue to be drinking water quality. All of the waters and shorelands in the Dennis drainage above this point will remain under the protection of the N.B. Water Quality Regulation program.

At the lower end of the sub-watershed, there is the potential for eventual conversion of older farm fields and woodlands to residential or even industrial development serving the greater St. Stephen area. This trend is expected to be a slow, allowing time to plan land use to include stream protection. Urban impacts on the lower section of Billy Weston Brook are seen as unavoidable but can be reduced through best management practices (BMPs).

### Recommended preliminary classification:

Required Class AP for all lakes and other waters in the Dennis sub-watershed above Maxwell Crossing.

For Billy Weston Brook, Class B from St. Stephen Drive (soon new Highway #1) to Brook St. and Class C from Brook St. to mouth. For Dennis Stream, Class B from Billy Weston Brook to mouth.

Class A for all other waters in the Dennis sub-watershed.

- ★ Continue to protect the Class AP status (drinking supply) waters of the Dennis subwatershed above Maxwell Crossing under the N.B. Water Quality Regulation program. Ongoing.
- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Develop and implement a multi-faceted BMP plan for the lower section of Billy Weston Brook to reduce the impacts of roads and parking lots, stormwater and commercial and residential uses. Identify and correct the source of the high *e. coli* counts observed in 1999. By 2002.
- ★ Increase BMP use in road maintenance, residential development and agriculture throughout the sub-watershed. By 2002.
- ★ Manage future land and water use of Dennis Stream below Billy Weston Brook to maintain high water quality for sea-run and resident fish populations. As warranted.

# Gallop Stream Composite Sub-Watershed



Total drainage area: 76.4 km<sup>2</sup>

Principal settlements: Crocker Hill, The Ledge, Champlain, Bay Road, Bensons Corner, Oak Bay,

St. Davids Ridge

Principal waters: Meadow Brook, Gallop Stream, Gallop Lake

The Gallop Stream Composite sub-watershed includes over 16 streams that empty to the St. Croix River downstream of Dennis Stream or to Oak Bay. The largest of these are Gallop Stream and Meadow Brook which together drain roughly 75% of the composite.

Old Highway 1 crosses the lower half of the watershed and is a focus of service, retail and small manufacturing businesses along with homes, a trailer park, a small airport and a campground. A new express Highway 1 is under construction on a parallel route just to the north of it. Roads along the shoreline serve residential properties, a golf course, small farms and a concentration of sand and gravel pits.

The upper portion of the watershed is predominantly forest, with some traditional small farms, some residences and limited road access.

#### Current status:

#### Principal land uses:

Forest (77%), agriculture (11%), rural residential or business (4%), wetland (4%) Principal land ownership:

Private small holdings (85%), corporate forestry interests (7%), Crown (7%) Principal water quality influences:

Point sources: licensed trailer park wastewater plant discharge, licenced park wastewater plant discharge. [licenced hatchery discharge goes to estuary at Oak Bay].

Nonpoint sources: rural residential and business, roads, agriculture, forestry

## Water quality:

Sampled in 1999 at six sites [MEAD1, MEAD4, HAT1, BENS1, PARK1, GALL1]. Streams in the lower portion of the sub-watershed generally showed a mix of effects from sulphide mineralization and limestone in bedrock (i.e. higher levels of alkalinity, calcium, chloride, chromium, potassium, manganese, sodium, sulphates, hardness and conductivity) that were not evident in the Gallop Stream samples from further north.

A segment of Meadow Brook in the vicinity of old Highway 1 receives the effluent from a small wastewater treatment plant which has elevated *e. coli* counts and also runoff from the highway, a gas station/restaurant and truck parking lot before flowing into an extensive marsh. The brook at Benson's Corner is visibly impacted between the highway and Oak Bay by concentrated residential development and an animal feedlot. The stream at Oak Bay Park receives the discharge from the park treatment plant just above head-of-tide. The influences of these activities are observed in water samples from these sites.

## Future goals:

In time, residential and business development can be expected to infill open areas in the lower part of the watershed, with the exception of the Meadow Brook marshlands. A major new highway will twin the existing primary roadway across this area.

Use patterns in the upper portion of the watershed are not expected to vary significantly, unless mineral exploration now underway across the southern part of the St. Croix watershed reveals a major gold or other metal find in this area.

### Recommended preliminary classification:

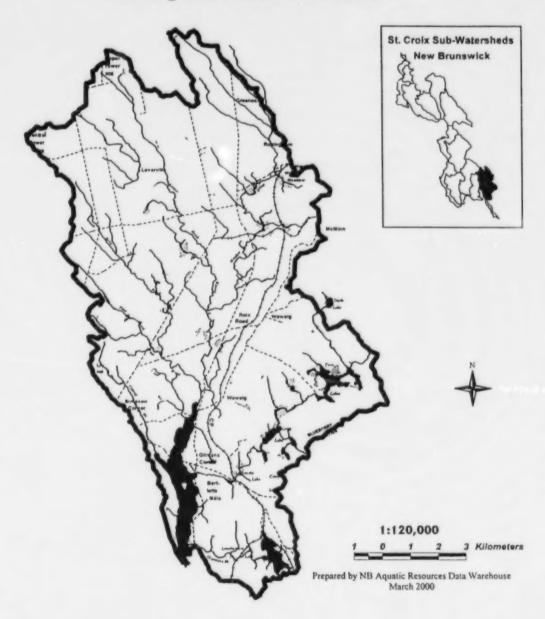
Class B for Meadow Brook between the East Coast Village treatment plant inflow and a point 250m below Old Bay Road and for Benson's Corner Brook below old Highway 1. Class C for the brook at Oak Bay Park below the treatment plant inflow.

Class AL for Gallop Lake.

Class A for all other waters in the Gallop Stream Composite sub-watershed.

- ★ Continue to implement Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Continue to maintain the Oak Bay Park treatment plant to minimize *e.coli* discharge to Oak Bay clam flats. *Ongoing*. [Note: this site is ineligible for a mixing zone as these are not proposed for the mouths of watercourses].
- ★ Increase BMP use in road maintenance, residential development, agriculture and also business operations along Highway 1. By 2002.
- ★ Rehabilitate degraded segments of the brook at Benson's Corner below Highway 1, remove debris and maintain minimal shore buffers along these waters. *By 2002*.
- ★ On Meadow Brook, explore options for a trailer park treatment plant upgrade to reduce e. coli levels; apply BMPs and shore buffering along truck stop parking lot. By 2003. Establish a mixing zone for the treatment plant discharge. On adoption of the Water Classification Regulation.
- ★ Apply the province's Environmental Impact Assessment process to any mining development. As warranted.

# Waweig River Sub-Watershed



Total drainage area: 133.5 km<sup>2</sup>

Principal settlements: Waweig, Tower Hill, Roix Road

Principal waters: Waweig River, Pout Brook, Berry Brook, Sawyer Brook, Meadow Brook, Twin Lakes, Long Lake, Goldsmiths Lake, Goldsmiths Stream, Limeburners Lake, Greenlaws Brook

The Waweig sub-watershed represents a combination of traditional and newer land uses. While it is primarily forest, the balance of the lands reflect a mix of small agriculture, rural residential or business use and infrastructure that has evolved differently from the other sub-watersheds.

With perhaps the exception of the Dennis Stream sub-watershed, much of which is protected as a designated drinking water supply, the Waweig River sub-watershed shows the most intensive combined use for small woodlots, small farming and roadside development along watercourses. Major highways 127 and 1 (the latter now being duplicated by a new express highway) both cross the watershed, as do a good number of rural roadways. An abandoned rail line with redevelopment potential runs the length of the drainage.

Much of the drainage lies on top of metal-rich bedrock that has recently come under exploration for gold and other elements. Short-lived (1997-1999) disposal sites for septage and fish waste near the intersections of the Waweig River and Pout Brook have been the subject of intense debate over groundwater and surface water impacts. Two now-closed rural dumps and an extended, 200 year-old sawmill complex are also found in the lower regions, as is a small salmon hatchery. Small dams impound the Twin Lakes and Goldsmiths Lake.

The upper section of the drainage is criss-crossed by roads which support a proliferation of small woodlots under harvest, small farming operations and rural residences, as well as a major egg producer.

The Waweig River maintains a small, historic population of sea-run gaspereau and also Atlantic salmon (the latter nearing endangered status in Canada) and includes a 5km long tidal segment which can be affected by inflow from an adjacent marine port and industrial park. The river itself and the Twin Lakes in the lower part of the watershed are included in the provincial list of environmentally significant areas.

Limeburners Lake, at the southernmost end of the sub-watershed, is unique in that it has outlets which drain to separate watersheds: Chamcook and St. Croix. The Chamcook watershed (not part of this study) is a designated drinking supply serving the Town of St. Andrews, hence the lake and a portion of its St. Croix outlet, Greenlaws Brook, will receive automatic protective classification.

#### Current status:

#### Principal land uses:

Forest (84%), agriculture (7%), wetland (4%), roads/utilities (3%)

#### Principal land ownership:

Private small holdings (85%), corporate forestry interests (7%), Crown (7%)

#### Principal water quality influences:

Point sources: a licenced hatchery discharge

Nonpoint sources: roads, agriculture, forestry, closed dumps, rural residential and business uses

#### Water quality:

Sampled in 1999 at six sites [POUT2, WAW1, WAW3, GOLD1, GOLD 2, GRLAW1] and 1999 N.B. Dept of the Environment data referenced for five sites. While the chemical parameters showed no outstanding trends for this sub-watershed and qualified the

waters for Class A status, the *e. coli* counts varied, giving some values in the Class B range at sites along the entire system. It is unclear as to whether these counts were of natural or human-caused origin and there was insufficient time to research the matter adequately in the course of this full watershed study.

Limeburners Lake is oligotrophic; the trophic status of the other lakes in this subwatershed was not assessed.

# Future goals:

This sub-watershed is at a crossroads. The impacts of small woodlot harvesting and farming, the potential for commercial mining and unresolved issues regarding waste disposal sites all compound the other development trends that the Waweig shares with the surrounding areas.

The interests within this sub-watershed need to have more information on *e. coli* sources and make land and water use decisions based upon these and other trends. Nearly all of the waters in this sub-watershed could be Class A, if local interests support this classification.

# Recommended preliminary classification:

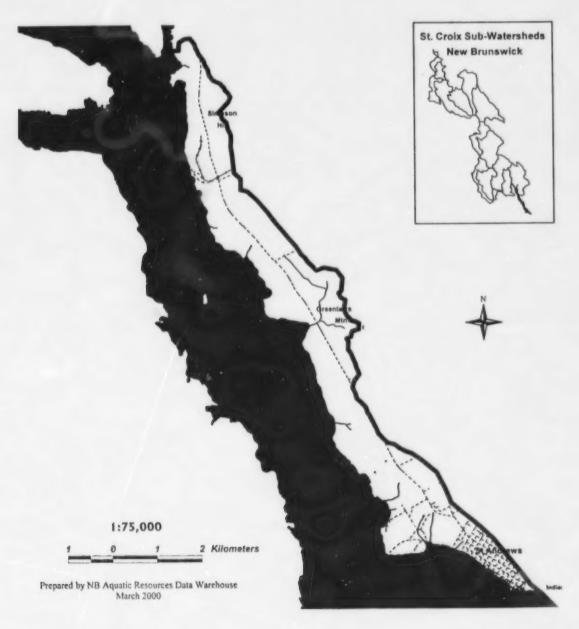
Class AP for Limeburners Lake and for Greenlaws Stream between Limeburners Lake and the railway line. Class AL for all other lakes.

Formal classification of the remaining waters of this sub-watershed be reserved pending further study and consultation.

# Recommended action:

- ★ Continue to protect the Class AP status (drinking supply) waters of Limeburners Lake and portions of Greenlaws Brook under the N.B. Water Quality Regulation program. Ongoing.
- ★ Continue and expand Best Management Practices (BMPs) for forestry operations. *Ongoing*.
- ★ Complete a more thorough assessment of this sub-watershed to clarify the origins of bacterial sources and consult on long-term goals in order to produce a preliminary classification plan. By 2001.
- ★ Increase BMP use in road maintenance, residential development and agriculture. Test dump sites periodically for potential leaching. By 2002.
- \* Apply the province's Environmental Impact Assessment process to any mining development. As warranted.

# Johnsons Cove Composite Sub-Watershed



Total drainage area: 16.2 km<sup>2</sup> Principal settlements: Bayside

Principal waters: Johnsons Brook, Pottery Creek

# Description:

This sub-watershed encompasses the short streams that arise from springs along the west side of the St. Andrews peninsula and drain to the St. Croix estuary. A regional port and industrial park complex is sited on the estuary at the upper end of this composite drainage and the Town of St. Andrews is located at the lower end. In between, residential development and old farm fields are scattered along Route 127 which parallels the estuary and crosses the few streams that extend this far inland.

Most of the streams in this sub-watershed flow through woods and farm fields (these largely inactive or hayed) and some are impounded briefly by farm ponds not used by livestock. The largest of these empties into Johnsons Cove, a clam flat.

One watercourse, Pottery Creek, lies within the Town of St. Andrews with both of its year-round branches originating near Bayview Drive. Since the early 1900s the north branch has flowed through the open greenways and water traps of a golf course; the center branch skirts this course and runs for most of its length through woods. Both branches join to flow out into a small salt marsh and beyond to a clam flat.

The St. Andrews headland is included on the provincial list of environmentally significant sites for it seabird habitat and its geology, the latter combining locally-predominant sandstone with volcanic basalt outcrops and calcium carbonate pockets, especially in the Joe's Point to Bar Road area.

### Current status:

# Principal land uses:

Forest (51%), agriculture (19%), urban (15%), industrial (5%), roads/utilities (4%)

# Principal land ownership:

Private small holdings (92%), provincial-industrial (7%)

# Principal water quality influences:

Point sources: none [licensed industrial park wastewater treatment plant discharge goes to estuary]

Nonpoint sources: roads, rural residential or business uses, urban uses, golf course, agriculture

# Water quality:

Sampled in 1999 at three sites, the stream at Johnsons Cove [JOHN1] and the north and center branches of Pottery Creek [POTT1, POTT2]. The stream at Johnsons Cove showed no unusual characteristics but the branches of Pottery Creek reflected strong local bedrock influences in elevated readings for conductivity, alkalinity, sulphates, selected metals (aluminum, chromium, copper) and other elements (arsenic, calcium, sodium, magnesium).

During the summer of 1999, the north branch of Pottery Creek showed the visible effects of current golf course reconstruction in terms of water quality, quantity and habitat. The golf course operators intend to restore this creek to a near-natural condition and carry out course maintenance activities in a way that will minimize impacts; when this is achieved the creek will meet Class B status and some sections may meet Class A.

# Future goals:

Residential and business development will continue to infill open space along Route

127 and the estuary shore, both in the rural areas and in St. Andrews. Use of the port and industrial park will increase.

# Recommended preliminary classification:

Class B for the north branch of Pottery Creek, pending further assessments. Class A for all other waters in the Johnsons Cove Composite sub-watershed.

# Recommended action:

- ★ Continue and expand Best Management Practices (BMPs) for forestry operations. Ongoing.
- ★ Increase BMP use in road maintenance, residential development and agriculture. By 2002.
- ★ Naturalize and establish shore buffers along the north branch of Pottery Creek; minimize golf course maintenance impacts on this watercourse; reassess segments for Class status. By 2003.
- ★ Apply BMPs to future urban, industrial and infrastructure developments in this subwatershed. As warranted.

# **Future Steps**

# **Further Assessments**

This short study assembled a 'snapshot in time' of water quality in the St. Croix watershed and, tempering this with historic water data and land use information, produced a classification proposal. While the classification process does not require extensive sampling of all waters, information gaps were identified which deserve attention.

The most notable of these needs are: (1) Additional water tests and impact assessments for the Waweig sub-watershed, to complete classification; (2) macro-invertebrate studies on the river below Woodland for boundary water classification and at other 1999 sites for provincial standards development; and (3) additional water tests to help identify sources and track recommended improvements in the downgraded segments noted in the previous section. Hopefully the N.B. Department of the Environment will support these assessments in 2000.

# **Action Planning & Implementation**

The Findings & Recommendations section of this report proposes a wide range of actions by the province, municipalities, the business sector and landowners to maintain high quality waters within New Brunswick, and most particularly the St. Croix watershed, while continuing to use these and surrounding lands for many purposes. Most of these actions are simple, low- or no-cost applications of best management practices however some -- initiating provincial programs or replacing wastewater infrastructure -- will require greater commitments.

An initial outline and timetable for a water quality action plan is included within the previous section of this report, but how to carry this forward?

The basis of the province's water classification program will be a Water Classification Regulation, which has not yet reached final form or been adopted. This formal step is expected in 2000 and will, when completed, lay the legal and operational framework for implementing a water quality action plan for the St. Croix watershed and the province.

Key components of the action plan proposed in this report fall to provincial responsibility and it is hoped that the province can implement these within the next two years.

To the extent that its resources allow, the St. Croix International Waterway Commission will continue to assist municipalities, businesses and landowners to act on the local recommendations in this report. In the near future, priority will be given to collaborating with municipal and business interests to reduce significant impacts on waters that currently fall below Class C standards.

# Appreciation

This project was an ambitious undertaking, seeking in a matter of ten months to evaluate and to develop an initial plan for water quality within the New Brunswick portion of the St. Croix watershed.

Its successful completion is due to the extensive cooperation and assistance received from very many people.

In the government sector, particular acknowledgement is due to N.B. Department of the Environment technical and laboratory staff who assisted with the intensive development and assessment needs of the project. Thanks also go to staff of the provincial departments of Natural Resources & Energy, Municipalities and Transportation, and of Environment Canada and the Maine Department of Environmental Protection, who supplied critical information.

In the private sector, willing assistance was received from the area's major forestry companies (St. Anne-Nackawic Pulp Company Ltd., J.D. Irving Ltd., H.J. Crabbe & Sons Ltd.), the mining company Freewest Resources Canada Ltd., and major industries including Georgia-Pacific Corporation and Flakeboard Company Ltd. The staff and councillors of the three municipalities (McAdam, St. Stephen and St. Andrews) were all extremely supportive, as were business interests in these communities and the rural areas.

The N.B. Aquatic Resources Data Warehouse of Doaktown, N.B. did an exceptional job of integrating various GIS map data bases to produce a comprehensive graphic and statistical picture of the St. Croix watershed which was used in assessments and consultations.

Most importantly, many local residents contributed their knowledge, and a number their boats or their time, to the data-gathering and planning aspects of this project. Their willingness and local expertise were invaluable, actually critical, to this project and earn a heartfelt 'thanks' from the small staff that relied upon this help in so many ways.

This project was coordinated by the St. Croix International Waterway Commission, which plans and facilitates delivery of resource and management initiatives along the St. Croix boundary corridor for New Brunswick and Maine.

It was funded by a grant from the New Brunswick Environmental Trust Fund, which is gratefully acknowledged.

**Appendices** 



Appendix 1. St. Croix International Waterway Commission sampling stations, 1998-1999.

### STREAM SITES 1999

| SCIWC Site # | Short description                               | UTM-E  | UTM-N    | NAD | # sample |
|--------------|---|--------|----------|-----|----------|
| SC-MON2A     | Monument Brk above Boundary Ref Mark #6 islands | 596245 | 5085106  | 83  | 3        |
| SC-MONIA     | Monument Brk @ power line                       | 593913 | 5078258  | 83  | 4        |
| SC-MONI      | Monument Brk @ Narrows, nr mouth                | 594930 | 5077404  | 83  | 2        |
| SC-HAY1      | Hay Brk trib @ power line road, North Lk        | 599880 | 5079419  | 83  | 1        |
| SC-NMILL     | Mill Brk (a), Rte 122, North Lk                 | 597738 | 5074365  | 83  | 1        |
| SC-EGTR1     | Trout Brk (a) Forest City Rd, E. Grand Lk       | 595537 | 5072557  | 83  | 2        |
| SC-FC1       | Forest City Str above hwy bridge                | 599062 | 5057330  | 83  | 6        |
| SC-MUDI      | Mud Lake Str @ campsite                         | 598989 | 5060222  | 83  | 1        |
| SC-SMED      | Meadow Brk, trib Pirate Brk, a Company Rd       | 597921 | 5068317  | 83  | 1        |
| SC-PIRI      | Pirate Brk - lower reach, Spednic Lk            | 598010 | 5067270  | 83  | 1        |
| SC-MUSQ1     | Musquash Str nr mouth, Spednic Lk               | 610010 | 5056475  | 83  | 1        |
| SC-BOLTI     | Bolton Str nr mouth, Spednic Lk                 | 610398 | 5061730  | 83  | 1        |
| SC-EBRK1     | East Brk nr mouth, Spednic Lk                   | 616300 | 5057925  | 83  | 1        |
| SC-PALI      | Palfrey Str @ Company Rd                        | 616913 | 5061636  | 83  | 5        |
| SC-DEAD1     | Dead Brk @ Rte 630                              | 620772 | 5056962  | 83  | 1        |
| SC-THIRD1    | Third Lk outfall below dam                      | 624364 | 5054230  | 83  | 2        |
| SC-WBEVI     | White Beaver Brk @ RR line                      | 630907 | 5053462  | 83  | 1        |
| SC-MCADI     | McAdam Brk @, RR line                           | 631120 | 5054205  | 83  | 1        |
| SC-DIGY1     | Diggity Str @ Rte 630 bridge                    | 622717 | 5052682  | 83  | 6        |
| SC-RVB       | St. Croix R betw Vanceboro dam & bridge         | 622683 | 5047345  | 83  | 6        |
| SC-RWING     | St. Croix R 'a. Wingdam Is                      | 622507 | 5044170  | 83  | 6        |
| SC-RBEAC     | St. Croix R @ Upr Beaconsfield campsite         | 617900 | 5038255  | 83  | 1        |
| SC-CAN2      | Canoose R a picnic site                         | 627260 | 5025707  | 83  | 6        |
| SC-CAN1      | Canoose R a mouth                               | 623725 | 5025575  | 83  | 1        |
| SC-KING2     | King Brk below DU dam                           | 625080 | 5021854  | 83  | 1        |
| SC-RGLEAS    | St. Croix R a Gleason Pt                        | 622725 | 5022061  | 83  | 5        |
| SC-RWOOD     | St. Croix R 750m below Woodland dam             | 626175 | 5001528  | 8.3 | 1        |
| SC-RGRAS     | St. Croix R a Grass Is                          | 627491 | 5000879  | 83  | 2        |
| SC-RBUTL     | St. Croix R @ Butler Is                         | 629231 | 4998962  | 83  | 2        |
| SC-RUPM      | St. Croix R a. Upper Mills                      | 632143 | 4999724  | 83  | 6        |
| SC-MOHI      | Mohannes Str @ Mohannes Rd                      | 630568 | 5002087  | 83  | 6        |
| SC-MOH2      | Mohannes Str @ Burnt Hill Rd                    | 629760 | 5003425  | 83  | 1        |
| SC-MOH3      | Mohannes Str a Rte 725                          | 627710 | 5005391  | 83  | 1        |
| SC-DOOD2     | Doodle Brk @ Pleasant St                        | 633401 | 5003584  | 83  | 1        |
| SC-RMTB      | St. Croix R @ Milltown bridge                   | 633815 | 5003224  | 83  | 6        |
| SC-TAN2      | Tan House Brk betw Milltown Blvd & WTP          | 634140 | 5004976  | 83  | 2        |
| SC-TANI      | Tan House Brk below WTP                         | 634149 | 5004819  | 83  | 2        |
| SC-DEN1      | Dennis Str above Axe Factory                    | 636750 | 5005877  | 83  | 6        |
| SC-DEN2      | Dennis Str @ Old Hwy 1                          | 636465 | 5007674  | 83  | 2        |
| SC-DEN5      | Dennis Str @ Rte 750 above Moore Mills Lk       | 635506 | 5016948  | 83  | 3        |
| SC-BILL1     | Billy Weston Brk nr mouth a RR tracks           | 636004 | 5007274  | 83  | 4        |
| SC-BILLIA    | Billy Weston Brk behind Mall                    | 635371 | 5006993  | 83  | 2        |
| SC-BILL2     | Billy Weston Brk a St. Stephen Drive            | 633815 | 5006936  |     | 1        |
| SC-MEAD1     | Meadow Brk @ Ledge Rd, Oak Bay                  | 641077 | 5005234  |     | 2        |
| SC-MEAD4     | Meadow Brk @ Old Hwy 1                          | 638376 | 5007739  |     | 1        |
| SC-HAT2      | Hatchery Str @ Ledge Rd, Oak Bay                | 641488 | 5008108  |     | 1        |
| SC-BENSI     | Benson's Corner Str @ Ledge Rd, Oak Bay         | 641732 | 5008766  |     | 2        |
| SC-PARK1     | Park Str @ campground rd, Oak Bay               | 642047 | 5009552  |     | î        |
| SC-GALLI     | Gallop Str above Rte 755 bridge                 | 642037 | 5011003  |     | 6        |
| SC-COTTI     | Cottrell Brk @ Old Hwy 1                        | 644588 | 5008585  |     | 1        |
| SC-WAW1      | Waweig R a camp above head-of-tide              | 646185 | 5010017  |     | 6        |
| SC-POUT2     | Pout Brk a Rte 760 (Roix Rd)                    | 644906 | 50110017 |     | 4        |
| SC-WAW3      | Waweig R @ Rte 760 (Roix Rd)                    | 646543 | 5012524  |     | 3        |

### STREAM SITES 1999 (cont.)

| SCIWC Site # | Short description                            | UTM-E  | UTM-N   | NAD | # samples |
|--------------|--|--------|---------|-----|-----------|
| SC-GOLD1     | Goldsmith's Str a Rte 127                    | 646180 | 5007525 | 83  | 2         |
| SC-GOLD2     | Goldsmith's Str @ Hwy 1                      | 647649 | 5007390 | 83  | 1         |
| SC- GRLAWI   | Greenlaw Brk a Rte 127                       | 646220 | 5004700 | 83  | 1         |
| SC-JOHN1     | Johnson's Str nr mouth                       | 649183 | 4998410 | 83  | 1         |
| SC-POT1      | Pottery Crk left branch, above Joes Pt. Rd.  | 651950 | 4993511 | 83  | 4         |
| SC-POT2      | Pottery Crk center branch, above Joes Pt. Rd | 651935 | 4993507 | 83  | 2         |

### LAKE SITES 1999 (UTMs approximated, not field recorded)

| SCIWC Site # | Short description                              | UTM-E  | UTM-N   | NAD | # samples |
|--------------|--|--------|---------|-----|-----------|
| SC-GFF 2     | Gr Falls Flowage Stn 2 - deep hole nr penstock | 618650 | 5014050 | 27  | 12        |
| SC-SIXTH I   | Sixth Lake deep hole                           | 620095 | 5064548 | 27  | 4         |
| SC-FIFTH 1   | Fifth Lake deep hole                           | 622792 | 5063792 | 27  | 12        |
| SC-BLTN1     | Bolton Lake deep hole                          | 610365 | 5061825 | 27  | 7         |
| SC-WD 2      | Woodland Flowage Stn2- upper basin deep hole   | 623350 | 5005398 | 27  | 12        |
| SC-WD I      | Woodland Flowage Stn1- lower basin deep hole   | 625650 | 5002900 | 27  | 12        |
| SC-MODS1     | Modsley Lake deep hole                         | 629265 | 5053642 | 27  | 4         |

# LAKE SITES 1998 (UTMS approximated, not field recorded)

| SCIWC Site # | Short description                                   | UTM-E  | UTM-N   | NAD | # samples |
|--------------|---|--------|---------|-----|-----------|
| SC-CNOSI     | Canoose Flowage deep hole                           | 630250 | 5030200 | 27  | 7         |
| SC-EGR1      | E. Grand Lk Stn 1 - deep hole nr Greenland Pt       | 598000 | 5058500 | 27  | 12        |
| SC-EGR4      | E. Grand Lk Stn 4 - deep hole nr the Tongue         | 598000 | 5057000 | 27  | 12        |
| SC-EGR6      | E. Grand Lk Stn 6 - deep hole nr Blueberry Pt       | 592700 | 5071500 | 27  | 12        |
| SC-NTHI      | North Lk Stn 1 - doep hole west end                 | 596450 | 5074900 | 27  | 11        |
| SC-NTH2      | North Lk Stn 2 - deep hole cast end                 | 598450 | 5076100 | 27  | 11        |
| SC-SKIF1     | Skiff Lk Stn 1 - deep hole nr isld N of Mill Is     | 614800 | 5075000 | 27  | 13        |
| SC-SPED1     | Spednic Lk Stn 1 - doep hole nr Forest City Lndg    | 601100 | 5057400 | 27  | 12        |
| SC-SPED5     | Spednic Lk Stn 5 - deep hole nr islds off Dark Cove | 601550 | 5049000 | 27  | 12        |
| SC-SPED6     | Spednic Lk Stn 6 - deep hole nr O'Malley's Is       | 612080 | 5050700 | 27  | 12        |
| SC-SPED7     | Spednic Lk Stn 7 - deep hole Palfrey Lk             | 619000 | 5055500 | 27  | 12        |
| SC-WAUK1     | Wauklehegan Lk Stn 1 - deep hole west end           | 612670 | 5051600 | 27  | 13        |
| SC-WAUK2     | Wauklehegan Lk Stn 2 - deep hole east end           | 628900 | 5050700 | 27  | 12        |

### **ESTUARY SITES 1999**

| SCIWC Site # | Short description                                 | UTM-E  | UTM-N   | NAD | # samples |
|--------------|---|--------|---------|-----|-----------|
| SC-EWAW1     | Waweig R. a mouth                                 | 645717 | 5004355 | 27  | 1         |
| SC-EWAW2     | Waweig R @ top of narrows below Ricketts Is.      | 645860 | 5005950 | 27  | 1         |
| SC-EWAW3     | Waweig R. a top Ricketts Is.                      | 645679 | 5007063 | 27  | 1         |
| SC-EWAW4     | Waweig R. a. old Hwy #1 bridge                    | 645425 | 5007625 | 27  | 1         |
| SC-ESCR1     | Lwr St. Croix R. betw Todds Pt/Devils Hd (EC D-2) | 644185 | 5002596 | 27  | 1         |
| SC-ESCR2     | Lwr St. Croix R. betw Spruce Pt/Stone House       | 641676 | 5002895 | 27  | 1         |
| SC-ESCR4     | Lwr St. Croix R. a. Knights Pt.                   | 638735 | 5003014 | 27  | 1         |
| SC-ESCR6     | Lwr St. Croix R. below Crocker Is                 | 637079 | 5004587 | 27  | 1         |
| SC-ESCR8     | Lwr St. Croix R. a. St. Stephen wharf             | 635415 | 5005670 | 83  | 1         |
| SC-ESCR9     | Lwr St. Croix R. a Ferry Pt. Bridge               | 634900 | 5005300 | 27  | 2         |

# **EXPLORATORY SITES FOR BILLY WESTON BROOK (E. COLI) - 1999**

| SCIWC Site # | Short description                                   | UTM-E  | UTM-N   | NAD | # samples |
|--------------|---|--------|---------|-----|-----------|
| SC-BILLIB    | Billy Weston Brk @ top of mall entrance culverts    | 635570 | 5006855 | 83  | 1         |
| SC-BILLIC    | Billy Weston Brk @ nr highway sign @ traffic circle | 635688 | 5007050 | 83  | 1         |
| SC-DEN2A     | Dennis Str 10m below mouth Billy Weston Brk         | 636296 | 5007072 | 83  | 1         |
| SC-DEN2B     | Dennis Str @ old Shoreline RR crossing              | 636112 | 5006850 | 83  | 1         |

Appendix 2. Primary point source discharges, St. Croix watershed. Listed in descending order from the system's source, including New Brunswick and Maine discharges.

| Location        | Оwner                                   | Facility/Use   | Discharging to                     | Licence or<br>Permit              | Daily discharge<br>design:average<br>(m3/day) | Avg. tested coliform loading (CFU/100ml) | Other primary<br>load components<br>of interest |
|-----------------|---|--|------------------------------------|-----------------------------------|---|--|---|
| McAdam, NB      | Village of McAdam                       | Municipal wastewater treatment facility: sanitary, industrial & storm  | Wauklehegan L.                     | NB: S-M2-2                        | 1318:1099                                     | not measured                             | BOD, TSS, TKN,<br>TP, Cl, temp                  |
| Baileyville, ME | Fulghum Fibers                          | Stormwater outfall   | St. Croix R.                       |                                   | not measured                                  | N/A                                      | none  |
| Baileyville, ME | Georgia-Pacific                         | Cooling water, boiler house and  | St. Croix R.                       | US: ME00-                         | cooling<br>56850:53060                        | NA                                       |   |
|                 | Corp.                                   | stormwater outfalls  |                                    | 22063<br>ME: W000508              | boiler/storm<br>454:245                       | 89<br>(fecal coliform)                   | BOD, 135, temp                                  |
| Bailcyville, ME | Georgia-Pacific<br>Corp.                | Industrial wastewater treatment facility: sanitary, industrial, landfill leachate. Second outfall for cooling water & stormwater discharge | St. Croix R.                       | US: ME00-<br>01872<br>ME: W002766 | 151600: 87170                                 | 2<br>(focal)                             | BOD, COD,<br>TSS, temp                          |
| Baileyville, ME | Town of Bailcyville                     | Municipal wastewater treatment facility: sanitary, industrial & storm  | Wapsaconhagan<br>Brk./St. Croix R. | ME: ME01-<br>01320                | 1137:1167                                     | 57<br>(c. coli)                          | BOD, TSS, TKN,<br>TP, tcmp                      |
| Baring, ME      | Irving Oil Corp.                        | Gas station/restaurant<br>wastewater treatment facility:<br>sanitary   | St. Croix R.                       | ME: 006607                        | :75   | not available                            | BOD, TSS, TKN,<br>TP, Cl, temp                  |
| St. Stephen, NB | Flakeboard Co.                          | Cooling water  | Tan House Brk.                     | NB: I-1493                        | :1500   | N/A                                      | temp  |
| St. Stephen, NB | Town of St. Stephen<br>(at Milltown)    | Municipal wastewater treatment facility: sanitary, industrial & storm  | Tan House Brk.                     | NB: S-S20-1-2                     | 954:1285                                      | not measured                             | BOD, TSS, TKN,<br>TP, temp                      |
| St. Stephen, NB | Town of St. Stephen<br>(at St. Stephen) | Municipal wastewater treatment facility: sanitary, industrial & storm  | St. Croix R.                       | NB: S-S20-2-2                     | 2045:   | 48,600<br>(fecal)                        | BOD, TSS, TKN,<br>TP, Cl, temp                  |
| St. Stephen, NB | Town of St. Stephen                     | Stormwater and combined sanitary/storm water lines   | St. Croix R.                       | NA                                | not measured                                  | not measured                             | bacteria, TSS,<br>road chemicals                |

| Location        | Owner   | Facility/Use  | Discharging to                        | Licence or<br>Permit  | Daily discharge<br>design:average<br>(m3/day) | Avg. coliform<br>loading<br>(CFU/100ml) | Other primary<br>load components<br>of interest |
|-----------------|---|---|---------------------------------------|-----------------------|---|---|---|
| Calois, ME      | City of Calais  | storm water lines   | St. Croix R.                          | N/A                   | not measured                                  | N/A                                     | TSS, road chemicals                             |
| Calais, ME      | City of Calais  | Municipal wastewater treatment facility: sanitary, industrial & storm             | St. Croix R.                          | ME: 002751-<br>46-DR  | 5670.1890                                     | 0<br>(c.coli)                           | BOD, TSS  |
| Calais, ME      | Washington Co.<br>Technical College,<br>Calais School Board | Institutional wastewater<br>treatment facility: sanitary                          | St. Croix R.                          | ME: 001339            | 56:39   | 5.6<br>(c.coli)                         | BOD, TSS, CI                                    |
| Dufferin, NB    | Atlantic Homes Ltd.   | Trailer park wastewater treatment facility: sanitar:                              | Meadow Brk                            | NB: •                 | not measured                                  | (fecal coliform)                        | BOD, TKN, TP,<br>TSS, DO, temp                  |
| Oak Bay, NB     | Oak Bay Hatchery  | Hatchery wastewater treatment facility  | Unnamed stream<br>to Oak Bay          | NB: 1-2406,<br>1-2416 | 5246:1636                                     | N/A                                     | TSS, TKN, TP                                    |
| Oak Bay, NB     | Province of<br>New Brunswick                                | Campground wastewater<br>treatment facility: sanitary                             | Unnamed stream<br>to Oak Bay          | NB: •                 | not measured                                  | 69,700 (feeal coliform)                 | BOD, TSS, TKN,<br>TP, Cl, DO, temp              |
| Waweig, NB      | River Bend<br>Hatchery                                      | Hatchery wastewater treatment facility  | Waweig R.                             | NB: 1-2350            | 2182:   | N/A                                     | TP  |
| Bayside, NB     | Province of<br>New Brunswick                                | Industrial wastewater treatment facility, septage disposal: sanitary & industrial | St. Croix estuary<br>near Waweig R    | N. S. S.              | : 453   | 243,960<br>(fecal coliform)             | BOD, TSS, TKN,<br>TP, temp                      |
| St. Andrews, NB | Huntsman Marine<br>Science Centre                           | Institutional wastewater<br>treatment facility: sanitary                          | St. Croix estuary<br>at Brandy Cove   | NB: •                 | : 23  | (fecal coliform)                        | BOD, TSS, TKN,<br>TP, DO, temp                  |
| St. Andrews, NB | Fisheries & Oceans<br>Canada                                | Institutional wastewater<br>treatment facility: sanitary                          | St. Croix estuary<br>near Brandy Cove | N/A                   | not available                                 | (fecal coliform)                        | BOD, TSS, CI                                    |
| St. Andrews, NB | Town of St.<br>Andrews                                      | storm water lines   | St. Andrews<br>harbor                 | N/A                   | not measured                                  | N/A                                     | TSS, road chemicals                             |

NB: \* indicates a permit to construct was issued for this facility but an operating permit has not yet been established

Parameters: BOD = biological oxygen demand, COD = chemical oxygen demand, CI = chlorine, DO = dissolved oxygen, NO<sub>x</sub> = nitrate/nitrite, temp = temperature, TKN = total phosphorus, 155 = total suspended solids, temp = temperature

Unit conversions: I m3 = 264.16 US gal = 0.00379 m3

Appendix 3. Primary non-point source pollution influences, St. Croix watershed.

| (              | •   |                      |        | Increases these effects   | these e | fects |        |       |       | BMPs       |
|----------------|---|----------------------|--------|---------------------------|---------|-------|--------|-------|-------|------------|
| Category       | Source  | bacteria,<br>viruses | excess | petroleum<br>hydrocarbons | silt    | salts | metals | other | water | available? |
|                | Inadequate septic systems                           | ,                    | >      |                           |         |       |        |       |       | yes        |
| Waste disposal | Farm & domestic animals, manure spreading           | ,                    | >      |                           |         |       |        |       |       | yes        |
|                | Former dumps/landfills                              |                      |        | >                         |         |       | 2      | 2     |       | yes        |
|                | Industrial disposal sites                           | ,                    | >      |                           |         |       |        | 2     |       | yes        |
|                | Road construction                                   |                      |        | >                         | 7       |       |        | 2     | >     | yes        |
|                | Land development                                    |                      |        | >                         | 2       |       |        |       | 2     | yes        |
| Ground         | Ploughed land                                       |                      |        |                           | 2       |       |        |       | >     | yes        |
| disturbance    | Logging   |                      |        | >                         | 2       |       |        |       | 2     | yes        |
|                | Mining, gravel pits                                 |                      |        | >                         | 2       |       |        | >     | >     | yes        |
|                | Recreational vehicles                               |                      |        | >                         | >       |       |        |       | >     | yes        |
|                | Urban stormwater runoff                             | 2                    |        | >                         | 2       | 2     | >      |       | 2     | yes        |
| Paved surfaces | Highway and rural runoff                            |                      |        | >                         | 2       | >     | 2      | 2     | 2     | yes        |
|                | Snow dumping  |                      |        | >                         | 7       | 2     | 2      | 2     |       | yes        |
| Residential    | roofs, patios, lawns, use of<br>household chemicals |                      | 2      |                           |         |       |        | 7     | 2     | yes        |
| Airborne       | distant industrial/energy plants, vehicle exhaust   |                      |        | >                         |         |       | 2      | 2     |       | yes        |

|   |   |                      |        | Increases these effects   | these ef | Fects |                         |       |       | BMPs       |
|---|---|----------------------|--------|---------------------------|----------|-------|-------------------------|-------|-------|------------|
| Category  | Source  | bacteria,<br>viruses | excess | petroleum<br>hydrocarbons | silt     | salts | silt salts metals other | other | water | available? |
| Ground<br>treatments -<br>large scale                     | farm fields, blueberry grounds, utility corridors, golf courses |                      | >      |                           |          |       |                         | 2     |       | yes        |
| Petroleum, road salt & chemical storage or transportation | spills, improper storage or<br>disposal                         |                      |        | ,                         |          | >     |                         | >     |       | yes        |
| Boat traffic  | Motorized recreational and commercial craft                     | >                    |        | >                         |          |       |                         | >     |       | yes        |

Other includes release of bedrock elements (including heavy metals), various hazardous substances, pesticides, herbicides, undegradable trash

Appendix 4. Summary of parameters included in New Brunswick Water Classification water quality assessments. Unless otherwise noted, the Canada Guidelines cited are the Canadian Environmental Quality Guidelines for the Protection of Aquatic Life.

| (table abbreviation)          | DESCRIPTION   | CANADA  | PROPOSED<br>NB STANDARD   | WATER-RELATED<br>BACKGROUND  |
|-------------------------------|---|---|---|--|
| Alkalinity, Grans<br>(Alk-G)  | Indicates water's ability to neutralize acid. Stated as an equivalent value of calcium carbonate in mg/l.   |   |   | 30-500 mg/l is generally acceptable. 2-10 mg/l shows sensitivity to acidification. |
| Aluminum<br>(Al)              | The most abundant metal in the earth's crust. An essential trace element for life processes, toxic to fish at higher levels.  | ≤ 5 μg/l at pH≤ 6.5 ≤ 100 μg/l at pH>6.5  |   |  |
| Ammonia<br>(NH <sub>3</sub> ) | A nitrogen/hydrogen form generated by plant and animal excretions; manufactured in inorganic form for use in fertilizers and cleaners. It affects oxygen transport in blood and is toxic to fish at low levels.                     | Varies with temperature<br>and pH, generally s 1370<br>-2200 μg/l   |   | Generally <100 µg/l in surface waters  |
| Antimony<br>(Sb)              | A brittle, inert metal often found with lead, silve and copper deposits. Used in compounds ranging from metal alloys to medicines.  |   |   |  |
| Arsenic<br>(As)               | A semi-metallic element found naturally in the common mineral arsenopyrite. A byproduct of smelting, used in industrial processes. Accumulates in the body. Some forms are quite toxic.   | \$ 50 µg/l  |   | Typically 0-10 µg/l in surface waters  |
| (EC)                          | One of the fecal coliform bacteria most commonly used as an indicator of sewage pollution. Listed as the most probable number (MPN) in 100ml water. N.B. standard is a geometric mean of a minimum of 5 samples in a 30 day period. | For swimming waters, a mean of <200 MPN for 5 samples in a 3 day period and <400 MPN for any one sample; no guideline is set for aquatic life | Class AP: no e.coli. Class 0, AL & A: as naturally occurs. Class B: <200. Class C: <400. Class B & C (tidal shelfish areas): <14. |  |

| PARAMETER<br>(table abbreviation) | DESCRIPTION  | CANADA  | PROPOSED<br>NB STANDARD | WATER-RELATED<br>BACKGROUND   |
|-----------------------------------|--|---|-------------------------|---|
| Cadmium<br>(Cd)                   | A soft metal found in association with metallic ores. Used in batteries, electroplating and solder. Toxic above trace levels; accumulates in the body.                                       | s0.017µg/l  |                         | Typically 0.1-10µg/l in natural surface waters  |
| Calcium, dissolved<br>(Ca-D)      | An alkaline-earth metal vital for bone development and muscle function. It and magnesium primarily determine water hardness.   |   |                         | < 15 mg/l is common in<br>this region's surface<br>waters. Can be up to 100<br>mg/l, even higher in tidal<br>waters.    |
| Carbon, total organic<br>(TOC)    | Organic carbon is required for most biological processes. This indicates the amount of organic (plant and animal) matter in the water: it will deplete waterborne oxygen as it decays.       |   |                         | General range is 1-30 mg/l<br>but < 10 mg/l is typical in<br>higher quality waters                                      |
| Chloride<br>(C,)                  | Major inorganic ion; with sodium forms common salt. Essential for life in trace amounts. As chlorine or chloride, used commonly in road salting, water and sewage disinfection and bleaches. |   |                         | Generally <10mg/l in freshwaters  |
| Chlorophyll A<br>(ChlA)           | Green pigment found in plants; can be used to estimate the amount of plant life in the water.  |   |                         | Generally < 4 mg/l in<br>unproductive, nutrient-<br>poor waters; 10-100 ug/l<br>in very productive or<br>enriched lakes |
| Chromium<br>(Cr)                  | A metal used extensively to harden and plate other metals. Used by the body in its trivalent form to metabolize fats and carbohydrates; toxic in other forms                                 | s 8 μg/l for trivalent<br>chromium, s l μg/l for<br>other forms |                         | Generally ranges 0-17μg/l in surface waters   |

| PARAMETER<br>(table abbreviation) | DESCRIPTION  | CANADA  | PROPOSED<br>NB STANDARD | WATER-RELATED<br>BACKGROUND   |
|-----------------------------------|--|---|-------------------------|---|
| Clarity<br>(Secchi)               | An index of how far light penetrates into the water, measured as the maximum depth at which a 25cm diameter 'secchi' disk with black and white quadrants can be seen in the water.                                   | For recreation, >1.2m viewing depth when measured without a viewing scope, no guideline for aquatic life  |                         | Decrease in secchi reading may indicate increased suspended matter; this often occurs at lake turnover in spring and fall and during algae blooms |
| Color, Apparent<br>(Clra)         | Color given to water by dissolved matter, suspended particles and light, measured on a color band scale.   | Mean value not signifi-<br>cantly less than that tobe<br>expected for those waters<br>on a seasonal basis |                         | Varies significantly. Decaying vegetation, tree bark and other organic matter color water naturally   |
| Conductivity<br>(Cond)            | Ability to carry an electrical current, helpful in determining the amount of dissolved matter in water.  |   |                         | Normal range 10-50 usie/cm in NB waters. Groundwater often higher than surface water.   |
| Copper<br>(Cu)                    | A metal essential, in trace amounts, to blood cell formation, nerves and the immune system; toxic above trace levels. Used in manufacturing metals and in fungicides and pesticides.                                 | From <2 µg/l at a water hardness of 0-120mg/l to <4 µg/l at a hardness of > 180mg/l                       |                         | Generally less than $50\mu g/l$ in surface waters   |
| Fluoride<br>(F)                   | A compound of the gas fluorine and oxgen. In trace amounts it aids bone and tooth formation, toxic in higher amounts. Often added to drinking water to prevent dental cavities.                                      |   |                         | Usually found in surface<br>waters in a range of 0-2<br>mg/l  |
| Hardness<br>(Hard)                | A measure of the calcium, magnesium and other divalent ions in water, expressed in calcium carbonate equivalent in mg/l. Increased hardness can decrease metal toxicities and acidity but increase mineral deposits. |   |                         | Varies from 0-30 mg/l in very soft water to >180 mg/l in very hard water  |

| PARAMETER<br>(table abbreviation) | DESCRIPTION   | CANADA  | PROPOSED<br>NB STANDARD                       | WATER-RELATED<br>BACKGROUND   |
|-----------------------------------|---|---|---|---|
| Iron<br>(Fe)                      | A metal, the fourth most common element on earth. Essential in forming hemoglobin (the oxygen-carrying blood pigment), also present in enzmes and proteins. Interferes with insect and fish reproduction and respiration. | ≤300 µg/l   |   | Usually less than 500 µg/l in surface waters  |
| Lead<br>(Pb)                      | A metal; its resistance to corrosion led to its extensive use in plumbing, paint and batteries until it was found to have a cumulative toxic effect on humans.  | s lμg/l - s/μg/l,<br>depending on water<br>hardness   |   | Typically 0-40 µg/l in natural surface waters   |
| Macro-invertebrates,<br>benthic   | Bottom-dwelling aquatic insects and other invertebrate animals large enough to be visible. The types and numbers of these are a good indicator of water characteristics over time.  |   | As naturally occur in<br>New Brunswick waters | Profiles are being developed which relate the macro-invertebrates found to various water quality types. |
| Magnesium<br>(Mg)                 | A metal involved in bone growth and nerve and muscle function. Forms the core of the plant photosynthesis compound, chlorophyll. With calcium, primarily determines water hardness.                                       |   |   | Normal range is 1-100<br>mg/l in surface waters   |
| Manganese<br>(Mn)                 | A metal involved in bone growth and energy production. May be essential to vitamin B1 utilization.  |   |   | Usually >0.2mg/l in<br>surface waters   |
| Nickel<br>(Ni)                    | A metal used extensively in alloys, it occurs naturally in trace amounts in foods and may be needed for human health.  However it accumulates in the food chains of aquatic species, with some toxic effects.             | Ranges from 25 µg/l at a water hardness of 1-60 mg/l to 150 µg/l at a hardness of >180 mg/l |   | Generally 15-20 µg/l in surface waters  |

| PARAMETER<br>(table abbreviation)       | DESCRIPTION   | CANADA   | PROPOSED<br>NB STANDARD  | WATER-RELATED<br>BACKGROUND  |
|---|---|--|--|--|
| Nitrite<br>(NO <sub>2</sub> )           | A transitory form of oxidized nitrogen produced by bacteria in nature, also found in industrial and sewage effluents. Toxic to humans and others above low levels.  | ≥60 µg/l   |  | Usually < 1 µg/l in surface<br>waters  |
| Nitrate<br>(NO <sub>3</sub> )           | The most common, stable form of nitrogen in surface waters. A product of natural nitrogen-fixing cycles and rock leaching, also found in sewage, industrial discharges and fertilizer runoff.   |  |  | 0.1-5 mg/l common in<br>surface water; may be 100<br>mg/l or more in water<br>affected by groundwater,<br>sewage or fertilizers. |
| Nitrate + Nitrite<br>(NO <sub>x</sub> ) | The combined inorganic forms of oxidized nitrogen. A major nutrient source for aquatic plants but can be toxic to fish at higher levels.  |  |  | 0.1-5 mg/l common in<br>surface water; higher in<br>water influenced by<br>groundwater, sewage or<br>fertilizer runoff.          |
| Nirrogen, total Kjeldahl<br>(TKN)       | Nitrogen is the earth's most common gas and a key building block of many compounds. It is measured here as the sum of the organic forms of nitrogen and ammonia.  |  |  | Commonly 0.1-0.5 mg/l in surface waters  |
| Oxygen, dissolved (DO)                  | Oxygen is one of earth's most versatile and abundant elements. Dissolved in water, it is used for respiration by most aquatic life. Dissolved oxygen levels are affected by temperature and aeration: cold or standing water generally have lower levels. Often measured in parts per million (ppm): 1ppm = 1 mg/l. | ≥ 5.5-6mg/l for warm-<br>water species; 6.5-9 mg/l<br>for coldwater species:<br>higher values for early<br>life stages | for cold-water species: > 9.5ppm (early stages), > 6.5ppm (other stages) for warm-water species: > 6.0ppm (early stages), > 5.0ppm (other stages), in estuarine waters: > 80% saturation | Generally 4-10ppm in<br>surface waters   |
| рн<br>(рн)                              | A measure of acidity/alkalinity based upon nydrogen fon concentration. A value of 7 is neutral; lower is acidic and higher is alkaline  | 6.5 - 9.0 for aquatic life, 6.5-8.5 for contact recreation   |  | Natural freshwaters range<br>pH4-9. A pHof 6.0-7.5 is<br>most common in this<br>region   |

| CANADA PROPOSED WATER-RELATED GUIDELINE NB STANDARD BACKGROUND | Should be \$ 25 \mughtagned in lakes and reservoirs to prevent excess algae growth, generally \$ 10 \mughtagned in rivers   | Generally < 10mg/l, rarely as high as 20mg/l                                | 1 mg/l -100,000 mg/l is common in surface waters  | For clear waters <ul> <li>25mg/l above</li> <li>background for short</li> <li>term, <ul> <li>55mg/l for</li> </ul> </li> <li>longterm. <ul> <li>10%</li> <li>change</li> </ul> </li> <li>longterm <ul> <li>10%</li> </ul> </li> </ul> | 5-5000 mg/l is found in surface waters  | Varies, to keep changes  Summer range of 18-25°C  is common for lake  surface waters; annual  range of the aquatic                  |
|--|---|---|---|---|---|---|
| DESCRIPTION  | A non-metallic element common in in-<br>organic and organic forms. An essential<br>plant nutrient and key biological building<br>block; stimulates plant growth. Used<br>commonly in fertilizers, cleaners and<br>water conditioners. | An alkali metal essential for function of nerves, muscles and vital organs. | A major alkali metal and important inorganic ion. With other elements, it forms salts widely used in households, industry and road maintenance. Helps regulate body fluid balance and blood pressure. | Measure of the solid particles, organic and inorganic, that can be filtered from the sater.  water.  water.  in packgroun the solid particles, organic and stary stary sater.  solid packgroun if backgroun is backgroun.             | An oxidized form of sulfur, comes naturally from rock leaching and biological processes. Used in some industrial processes. | A measure of heat energy. Affects water's ability to hold dissolved oxygen and the respiration rate of most aquatic organisms range |
| PARAMETER<br>(table abbreviation)                              | Phosphorus, total (TP-L)  | Potassium<br>(K)  | Sodium<br>(Na)  | Solids, total suspended (TSS) or (SS)   | Sulphate<br>(SO <sub>4</sub> )  | Temperature<br>(Temp)   |

| (table abbreviation) | DESCRIPTION  | CANADA  | PROPOSED<br>NB STANDARD | WATER-RELATED<br>BACKGROUND  |
|----------------------|--|---|-------------------------|--|
| Turbidity<br>(Turb)  | A measure of water clarity resulting from particles in the water (silt, algae, ctc). Measured in nephelometric turbidity units (NTU).  | For clear waters s 8 NTU above background for short term, s 2NTU for longer term. For turbid waters s 10% change. |                         | Can range 0.1-1000 NTU in natural waters, but is typically 0.1-5 NTU |
| Zinc<br>(Zn)         | A natural metal used in many alloys (ex: brass, bronze, galvanized steel). Essential to immune system and cell development in trace amounts; toxic to aquatic life at higher levels. | <30 µg∕l  |                         | Typically <50 μg/l in natural surface waters.                        |

# Units of measure:

mg/l. milligrams per liter. .ug/l. micrograms per liter (1000 micrograms = 1 milligram). ppm: parts per million.

# Primary references:

Canadian Council of Ministers of the Environment, 1999. Canadian Environmental Quality Guidelines. Canadian Council of Ministers of the Environment, Winnipeg, Man. R.N. McNeely, V.P. Neimanis and L. Davyer. 1979. Water Quality Sourcebook: A Guide to Water Quality Parameters. Environment Canada, Ottawa, Ont.

APPENDIX ša. 1988 8t. Croix Stream Study Fleid and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| Station #   | Location   | Cate      | Time | DOE Lab   | DOE Field # | Ng/ as   | Mg/l as<br>CaCO3 | Vg/l as | 2 20 20 | 35.8 | 5 5 d |
|-------------|--|-----------|------|-----------|-------------|----------|------------------|---------|---------|------|-------|
| SC-MON2     | Monument Brit above boundary ref mark #6 islands   | 99/06/28  | 2032 | 199905181 | 94/00493    | 0 015    | 27.00            | 1.14    | 917     | 0    | 1.98  |
|             |  | 99/07/19  | 1755 | 199906965 | 94/00620    | 0 050    | 30.20            | 1.1     | 13 00   | 0    | 2.36  |
| a sactain a | Manuschard Drie St. services lives   | 99/07719  | 1744 | 199906674 | 94/00551    | 0 0 0 14 | 32 50            | 1 28    | 12.80   | 0    | 2.26  |
| Calcala     | See all the see al | 99/08/23  | 1335 | 986806561 | 99/00607    | 0 025    | 28.40            | 1.13    | 12.80   | 00   | 1.69  |
|             |  | 99/10/17  | 1345 | 199912818 | 94/00665    | 0.00     | 14.40            | 30      | 8.64    | 00   | 2 2   |
| SC-MON1     | Monument Brix @ Narrows, nr mouth  | 99/08/23  | 1735 | 199908987 | 60900/66    | 690 0    | 25.30            | 1.1     | 11.80   | 01   | 0.50  |
|             |  | 99/09/27  | 1230 | 199911155 | 94/00663    | 0 0000   | 12.40            | 00      | 6.95    | 00   | 1.25  |
| SC-HAY1     | Hay Brit trib 🚯 power line road. North Lik   | 11/10/66  | 1719 | 199905087 | 94/00513    | 0.074    | 12.90            | 0       | 4.75    | 0    | 0.34  |
| SC-NMILL1   | Mil Brk @ Rie 122, North Lx  | 99/07/11  | 1705 | 199905993 | 94/00519    | 0.278    | 7.23             | 0       | 3.72    | 0    | 0 38  |
| SCEGTRE     | Troud Bris @ Forest Cdy Rd, E. Grand Lik   | 99/07/11  | 1740 | 199905985 | 94/00510    | 0 127    | 24 60            | 00      | 10 30   | 00   | 88    |
| SCFCI       | Forest City Sir above hwy bridge   | 99/06/25  | 1442 | 199905172 | 94/00467    | 0 000    | 9 28             | 0       | 3 00    | 0    | 1 67  |
|             |  | 99/06/28  | 2114 | 199906673 | 94/00495    | 0 000    | 10 30            | 0       | 4.29    | 0    | 1.53  |
|             |  | 99/08/05  | 1605 | 199907771 | 94/01373    | 0 000    | 10 00            | 0       | 4.70    | 0    | 1.53  |
|             |  | 99/08/23  | 1930 | 199906961 | 94/00611    | 0 007    | 10 40            | 00      | 421     | 00   | 1.32  |
|             |  | 99/09/09  | 1425 | 199912819 | 94/00069    | 8000     | 910              | 00      | 4 43    | 0    | 2     |
| SC-MUD1     | Mud Lake Str @ campoide  | 93/00/25  | 1415 | 190005171 | 98/00/86    | 0 010    | 0 11             | 0       | 377     | 0    | 1.72  |
| SC-SMED     | Meadow Brk, Inb Prate Brk. @ Company Rd  | 99/06/25  | 1346 | 199905170 | 94/00485    | 0.005    | 13.10            | 0       | 8.14    | 0    | 0 0   |
| SC-PIR1     | Pygte Brit - sower reach Spednic Lik   | 99/09/27  | 1455 | 190011156 | 99900/146   | 0 247    | 3 0              | 0       | 8 %     | 0    | 1,10  |
| SC-WUSO1    | Musquedt Str @ wood road. Spednic Ut.  | 62/90/66  | 1543 | 199909312 | 800000/66   | 9100     | 18 70            | 1 02    | 0 92    | 0    | 0     |
| SC-BOLT!    | Batton Str nr mouth. Speanic Lik   | 71/80/6/2 | 9091 | 199508558 | 94/00500    | 990.0    | 6.76             | 0       | 3 30    | O    | 0 63  |
| SC-E88K 1   | East Brit or mouth. Specino Lx   | 71/90/66  | 1520 | 197908556 | 94/00522    | 0 030    | 474              | 0       | 2 23    | 0    | 0 69  |

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Field and Laboratory Cata.
Values shown as zero (0) refect no detectible value at the limit of quantification (see test methods at end of table)

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| Scarting         Location         Date viring           SC-CAN1         Canoose R @ mouth         99/04/17           SC-RING2         King Brit below DU dam         99/04/17           SC-RGLEAS         St. Crox R @ Gleeson Pt         99/04/17           SC-RGUTL         St. Crox R @ Gleeson Pt         99/04/17           SC-RGUTL         St. Crox R @ Buder is         99/04/17           SC-RGUTL         St. Crox R @ Buder is         99/04/17           SC-MOH1         Mohannes Str @ Mohannes Rd         99/06/17           SC-MOH2         Mohannes Str @ Burnt Hill Rd         99/06/17           SC-MOH2         Mohannes Str @ Ressant St         99/09/16           SC-DOOD2         Doodle Bir @ Pleasant St         99/09/16           SC-DOOD2         Boodle Bir @ Pleasant St         99/07/10           SC-DOOD2         Boodle Bir @ Pleasant St         99/07/10           SC-DOOD2         Boodle Bir @ Pleasant St         99/07/10 | ocation ocation ocation while Rd Hill Rd 25 15 15 15 15 15 15 15 15 15 15 15 15 15  | Date  yimid  99/08/17  99/08/17  99/08/18  18 18 18 18 18 18 18 18 18 18 18 18 18 1 | Pt 99/06/77 2030 199904857 7 2030 199904857 99/06/77 2030 199904857 7 2030 199904858 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2  | Proceedings   1990 | AL A  | Pt 99/06/17 1750 199906657 94/00699 0.107 32.00 11/9906657 94/00699 0.107 32.00 11/9906657 94/00699 0.107 32.00 11/9906657 94/00699 0.107 32.00 11/9906657 94/00699 0.107 32.00 11/9906657 94/00699 0.107 32.00 11/9906657 94/00699 0.107 32.00 11/9906657 94/00699 0.107 32.00 11/9906971 94/00699 0.107 32.00 | Part  | Part  |
|--|---|---|---|---|---|---|---|---|
| 99/10/17 99/10/17 99/10/17 99/10/18 99/10/18 99/10/18 99/10/18 99/10/18 99/10/18 99/10/18 99/10/18 99/10/18 99/10/18 99/10/18 99/10/18 99/10/18  | 99/06/23 0950 99/06/23 0950 99/06/23 0950 99/06/23 0950 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/23 1720 99/06/22 1720 99/06/22 1720 |   | 199006557<br>19900657<br>19900657<br>19900657<br>19900635<br>199006313<br>199006814<br>199006813<br>199006814<br>199006813<br>199006814<br>199006813<br>199006813<br>19900683<br>19900683<br>19900683<br>19900683<br>19900683<br>19900683<br>19900683<br>19900683             | DOE Lab # DOE Field # ug  199904895 94/00428 199906857 94/00428 199906803 94/00428 199906803 94/00563 199906803 94/00563 199906819 94/00563 199906819 94/00563 199906819 94/00563 199906819 94/00564 199906819 94/00564 199906819 94/00564 199906819 94/00564 199906819 94/00564 199906819 94/00564 199906819 94/00563 199906819 94/00562 199906815 94/00502  | DOE Lab # DOE Field # ug/l as mg/l as | The color of the  | DOE Lab # DOE Field # ug/l as mg/l as ug/l as | Total Color   |
|  | 1750<br>1750<br>1750<br>1750<br>1750<br>1750<br>1750<br>1750  |   | 199904892<br>199904895<br>199904895<br>199904895<br>199904894<br>199904894<br>199904894<br>199904893<br>199904893<br>199904893<br>199904893<br>199904893<br>199904893<br>199904893<br>199904893<br>199904893<br>199904893<br>199904893<br>199904893<br>199904893<br>199904893 | DOE Lab # DOE Field # ug  199904895 94/00569 199906895 94/00569 199906895 94/00563 199906895 94/00563 199906895 94/00563 199906895 94/00563 199906895 94/00563 199906897 94/00563 199909409 94/00563 199909409 94/00564 199909409 94/00564 199909409 94/00564 199906891 94/00564 199906891 94/00563 199906891 94/00563 199906891 94/00563 199906891 94/00563 199906891 94/00563   | 199904592   94/00426   0.054   0.054   0.0554   0.0554   0.0554   0.0554   0.0554   0.0554   0.0555   | 199904657   94/00659   0.054   12.40   1.11   | DOE Lab # DOE Field # ug/l as mg/l as ug/l as | The control of the |

may the

APPENDIX 8a (cont.), 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) refect no detectible value at the limit of quantification (see test methods at end of table)

| Time DOE Lab # DOE Field # ugh as Alt. Alik-G  1723 1999026817 94/00508 0.769 25.00  1710 1999026816 94/00507 0.510 25.00  1535 199902681 94/00577 0.510 25.00  1555 199902681 94/00577 0.046 20.60  1550 199902691 94/00571 0.046 20.60  1550 199902691 94/00591 0.041 18.40  0820 199902695 94/01525 0.029 21.00  1340 199913057 94/01586 0.024 10.70  1340 199913057 94/01586  1340 199913057 94/01586  1415 199904897 94/00592 0.118 58.60  1420 199913057 94/01580 0.110 54.90  1420 199913052 94/01580  1410 199913053 94/01583  | 1999026817 94/00506<br>199912872 94/00506<br>199912872 94/00507 0.510<br>199912967 94/00521 0.050<br>1999026819 94/00521 0.050<br>199902899 94/00521 0.050<br>199902899 94/00521 0.050<br>199902899 94/00521 0.050<br>199902899 94/00598 0.041<br>199913057 94/00596<br>199913057 94/00595 0.118<br>199910267 94/01586<br>199910267 94/01586<br>199910267 94/01586<br>199910262 94/01580<br>199910262 94/01580<br>199910262 94/01580  | 1999026817 94/00505 12.30  | 199906817   9400696   1,54   1,99906817   9400696   1,54   1,99906817   9400696   1,54   1,59906817   9400696   1,54   1,59906816   1,59906816   9400697   0,046   2,590   1,54   1,99906816   9400697   0,046   2,590   1,59   1,99906899   9400699   0,041   18,40   1,41   1,99913065   9400699   0,041   18,40   1,41   1,99913065   9400699   0,041   18,50   1,19   1,99904897   9400699   0,041   1,89904897   9400699   0,041   1,89904897   9400699   0,041   1,41   1,99913065   9400699   0,041   1,41   1,41   1,99913067   9400699   0,0491   1,41  |
|--|---|--|--|
| 94/00505<br>94/00506<br>94/00507<br>94/00521<br>94/00521<br>94/00521<br>94/00521<br>94/00521<br>94/00521<br>94/00521<br>94/00521<br>94/00521<br>94/00521<br>94/00526<br>94/01585<br>94/01582<br>94/01582<br>94/01582<br>94/01582<br>94/01582<br>94/01583<br>94/01583   | 94/00505 94/00506 94/00506 94/00507 94/00507 94/00507 94/00507 94/00507 94/00509 94/01505 94/01505 94/01503 94/01503 94/01503 94/01503 94/01503 94/01503 94/01503 94/01503 94/01503 94/01503  | 94/00505 94/00506 94/00506 94/00507 94/00507 94/00507 94/00507 94/00507 94/00509   | 94/00595 94/00677 94/00677 94/00696 94/00697 94/00698 94/00698 94/00698 94/00698 94/00698 94/00698 94/00698   |
| 221 2510 2510 2510 2510 2510 2510 2510 2   | 25.00 25.90 25.00 25.90 25.00 25.90 25.00 25.90 25.00 25.90 25.00 25.90 25.00 25.90 25.00 25.90 25.00 25.90 25.00 25.90 25.00 25.90 25.00 25.90 25.00 25.90 25.00 25.90 | 38 mg/l as ug/l as ug/ | 38 mg/l as ug/l as ug/   |
| Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Alk-G<br>Al | 434   | A A A A A A A A A A A A A A A A A A A  | As Ca-D as As Log as Lo   |
|  | As A  |  | Ca-0<br>Cal as<br>Cal as |

APPENDIX 5s (cont.). 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

| 2 % j                     | 29.50                               | 26.80                  | 34.40                            | 33.40                                   | 110.00                            | 2.40<br>2.19<br>1.67<br>3.29<br>2.87                          | 21.30                     | 2.26<br>2.26<br>2.26<br>2.06<br>2.06<br>2.06<br>2.06<br>2.06  | 2.73<br>4.99<br>6.62                | 25.22                               | 9.53                      | 3.96                    | 2.97                            |
|---------------------------|-------------------------------------|------------------------|----------------------------------|---|-----------------------------------|---|---------------------------|---|-------------------------------------|-------------------------------------|---------------------------|-------------------------|---------------------------------|
| 2 50                      | 00                                  | 0                      | 0                                | 00                                      | 0                                 | 000000  | 0                         | 000000  | 000                                 | 000                                 | 00                        | 0                       | 0                               |
| 0 % 0                     | 22.80                               | 31.60                  | 33.30                            | 9.71                                    | 22.90                             | 4.26<br>4.55<br>4.54<br>10.10<br>7.11                         | 11.70                     | 55 55 55 55 55 55 55 55 55 55 55 55 55                        | 5.20<br>5.14<br>4.74                | 6.38                                | 6.13                      | 3.29                    | 86                              |
| As as                     | 80                                  | 1.41                   | 1.04                             | 2.10                                    | 0                                 | 1.85<br>1.77<br>1.75<br>1.25                                  | 3.94                      | 2.13<br>2.14<br>2.14<br>1.81<br>2.6<br>1.26                   | 1.99                                | 1.94                                | 00                        | 0                       | 1 28                            |
| Alk-G<br>mg/l as<br>CaCO3 | 59.70<br>32.50                      | 71.10                  | 73.00                            | 54.80                                   | 35.90                             | 9.27<br>10.20<br>8.84<br>9.87<br>21.70<br>6.68                | 29.20                     | 12.30<br>13.00<br>11.60<br>13.00<br>11.10<br>7.29             | 12.70                               | 10.60<br>15.50<br>7.88              | 14.40                     | 8 05                    | 30.50                           |
| A A K                     | 0.023                               | 0.084                  | 0.019                            | 0.040                                   | 0.200                             | 0.080<br>0.130<br>0.117<br>0.125<br>0.042                     | 0.068                     | 0.049<br>0.039<br>0.032<br>0.032<br>0.040<br>0.269            | 0.090                               | 0.069                               | 0.019                     | 0.015                   | 0.047                           |
| DOE Field #               | 94/00678                            | 6/900/16               | 94/00681                         | 94/00501                                | 94/01573                          | 99/00423<br>94/00514<br>94/00596<br>94/01524<br>94/01578      | 94/00507                  | 94/00420<br>94/00511<br>94/00595<br>94/01523<br>94/01575      | 94/00421<br>94/00596<br>94/01578    | 94/00422<br>94/00597<br>94/01577    | 94/00509                  | 94/00508                | 99/00672                        |
| DOE Lab #                 | 199908983<br>1999129 <del>6</del> 6 | 199906962              | 199906984                        | 199910943                               | 199912829                         | 199904890<br>199906590<br>199907780<br>199908896<br>199908894 | 199905818                 | 199904887<br>199906589<br>199908895<br>199909893<br>199912961 | 199904888<br>199908896<br>199912962 | 199904889<br>199908897<br>199912963 | 199905820                 | 199905819               | 199909314                       |
| Time                      | 1750                                | 1430                   | 1445                             | 0725                                    | 750                               | 0735<br>1520<br>1405<br>1940<br>1240                          | 961                       | 425<br>1500<br>1950<br>1350<br>1830<br>1155                   | 0710<br>1330<br>1215                | 0655<br>1325<br>1225                | 1945                      | 1915                    | 1920                            |
| Date                      | 99/08/23                            | 99/08/23               | 99/08/23                         | 99/06/29                                | 98/10/18                          | 99/06/23<br>99/06/23<br>99/06/22<br>99/06/23                  | 70/70/66                  | 99/06/23<br>99/07/18<br>99/06/72<br>99/09/07<br>99/10/18      | 99/06/23<br>99/10/18                | 99/06/23<br>99/10/18                | 99/07/07                  | 701/20166               | 98/08/29                        |
| Location                  | Meadow Brk @ Ledge Rd. Oak Bay      | Meadow Brk @ Old Hwy 1 | Hatchery Str @ Ledge Rd, Oak Bay | Benson's Corner Str @ Ledge Rd, Oak Bay | Park Str @ campground rd, Oak Bay | Gallop Str above Rte 755 bridge                               | Cottrell Brit @ Old Hwy 1 | Waveig R above head-of-tide                                   | Waweig R @ Rte 760 (Rox Rd)         | Pout Brk @ Rte 750 (Rox Rd)         | Goldsmith's Str @ Rte 127 | Goldsmith's Str @ Hwy 1 | SC-GRLAW Greenlaw Bit @ Rie 127 |
| Station #                 | SC-MEAD1                            | SC-MEAD4               | SC-HAT2                          | SC-BENS1                                | SC-PARK1                          | SC-GALL1  | sc-co112                  | SC-WAW1   | SC-WAW3                             | SC-POUT2                            | sc-Gold1                  | sc-GoLD2                | SC-GRLAW                        |

APPENDIX 54 (cont.). 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

| Station #        | SC-JOHN1 Johnson's     | SC-POT1 Pottery C                                | SC-POT2 Pottery C                            | ESTUARY DATA | SC-EWAW1 | SC-EWAW2 | SC-EWAW3 | SC-EWAW4 | SC-ESCR1 | SC-ESCR2 | SC-ESCR4 | SC-ESCR6 | SC-ESCR8  |          |
|------------------|------------------------|--|--|--------------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|
| Location         | Johnson's Str nr mouth | Pottery Crk north branch, above Joes Pt. Rd.     | Pottery Crk center branch, above Joes Pt. Rd |              |          |          |          |          |          |          |          |          |           |          |
| Date<br>y/m/d    | 92/60/66               | 99/06/29<br>99/06/24<br>99/09/26<br>99/10/17     | 99/08/24<br>99/09/26<br>99/10/17             |              | 99/09/22 | 99/09/22 | 99/09/22 | 99/09/22 | 99/09/22 | 99/09/22 | 99/09/22 | 99/09/22 | 99/10/27  |          |
| Time             | 1435                   | 0655<br>0725<br>1355<br>1905                     | 1401   |              | 1225     | 1211     | 1155     | 1065     | 1231     | 1242     | 1254     | 1305     | 1030      |          |
| DOE Lab #        | 199910946              | 199905188<br>199908992<br>199910941<br>199912827 | 199910942<br>199912828                       |              |          |          |          |          |          |          |          |          | 199967977 |          |
| DOE Field #      | 94/00484               | 94/00500<br>94/00514<br>94/00700<br>94/01565     | 94/00461                                     |              | 94/00694 | 94/00693 | 94/00692 | 94/00691 | 94/00695 | 94/00696 | 26900/16 | 94/00698 | 94/01590  | 04400000 |
| Ng/ as           | 0.400                  | 0.524<br>0.334<br>0.456<br>0.234                 | 0.219  |              |          |          |          |          |          |          |          |          |           |          |
| Mg/l as<br>CaCO3 | 15.00                  | 23.80<br>57.60<br>76.00<br>44.60                 | 90.00  |              |          |          |          |          |          |          |          |          |           |          |
| As As            | 0                      | 3.46<br>5.69<br>2.56                             | 3.49   |              |          |          |          |          |          |          |          |          |           |          |
| 3 50             | 6.97                   | 10.70<br>24.00<br>38.80<br>20.60                 | 49.50  |              |          |          |          |          |          |          |          |          |           |          |
| S 28 S           | 0                      | 0000   | 00   |              |          |          |          |          |          |          |          |          |           |          |
| 2 8 Q            | 12.10                  | 8.98<br>18.00<br>48.30<br>17.50                  | 337.00                                       |              |          |          |          |          |          |          |          |          |           |          |

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible values shown as zero (0) reflect no detectible values at the lines of an experience.

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

| 94/00494                                | 1999011157 94/00668 1              |   | 199905185 94/00497   | 199905186 94/00498<br>199906676 94/00548   | 199905986 94/00512   | 198905992 94/00520   |  | 199906677 94/00547   |  | 199909899 94/01529<br>199912821 94/01574  |  | 199906588 94/00553   |   | 199912822 94/01563  |  | 199906567 94/00552   |  | 199903897 94/01564<br>199912823 94/01564  | 199912824 94/01567  |  |  | 199908559 94/00592   |  |
|---|------------------------------------|---|--|--|--|--|--|--|--|---|--|--|---|---|--|--|--|---|---|--|--|--|--|
|   |                                    | 94/01670  | 94/00497   | 94/00548   | 94/00512   | 94/00520   | 94/00499   | 94/00547   | 94/00613   | 94/01529  | 94/00431   | 94/00553   | 94/00506  | 94/01563  | 94/00449   | 94/00552   | 94/00605   | 94/01564  | 94/01567  | 94/00429   | 94/01377   | 94/00592   | 94/01568   |
|   |                                    |   |  |  |  |  |  |  |  |   |  |  |   |   |  |  |  |   |   |  |  |  |  |
| 388                                     | 2 8                                | 75  | 8  | 0.04   | 250  | 520  | 9  | 88   | 8  | 88  | 20   | D &  | un u  | 0 0   | 10   | 0 0  | 0  | 0 0   | 2   | 8 5  | 88   | 8 8  | 18   |
| 36.00                                   | 27.90                              | 28.40   | 47.10  | 22.40  | 45.30  | 23.60  | 28.10  | 28.60  | 29.90  | 30.60   | 28.00  | 30.30  | 30.10   | 32.40   | 28.40  | 30.10  | 30.10  | 31.50   | 33.10   | 46.50  | 45.20  | 60 40  | 63.30  |
| 90000                                   | 0.0000                             | 0.0007  | 0.0019   | 90000  | 600000   | 0.0007   | 0  | 00   | 0  | 0 0000  | 0  | 0000   | 0   | 0.000   | 0  | 90000  | 00   | 0.0006  | 0.0006  | 0.0009   | 0.0006   | 0.0006   | 0.0012   |
| 0.0000                                  | 00000                              | 0.0006  | 0  | 90000  | 0.0006   | 0  | 0.0005   | 00   | 0.001  | 00  | 0  | 8  |   | 00  | 0  | 6000.0   | 00   | 00  |   | 0.0005   | 0.0007   | 0 0000   | 0.0007   |
| 2 2 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | 20.60                              | 21.00   | 13.40  | 9.89   | 30.70  | 32.80  | 6.90   | 17.23  | 6.87   | 9.11  | 5.67   | 2 4 4  | 4.42  | 5.46  | 4 88   | 36.36  | 4.65   | 5.70  | 7.29  | 13.50  | 15.50  | 24 30  | 23 50  |
| 858                                     | 3 8                                | 9   | 8  | 5 8<br>5 8   | 110  | <10  | 8  | 8 1  | Ô  | 85  | <10  | 015  | c10   | 010   | 410  | 01   | 012  | 000   | c10   | 88   | 3 1 (  | 8 8  | 0  |
| 000                                     | 00                                 | 0   | 0.139  | 00   | 0  | 0  | 01   | 00   | 0  | 00  | 01   | 0 0  | 0   | 00  | 0  | 00   | 00   | 00  | 0   | 00   | 00   | 00   | 0  |
| 0.09                                    | 0.15                               | 0.16  | 0.52   | 0.25   | 0.66   | 0.74   | 0.11   | 90.0   | 90.0   | 0.07  | 0  | 00   | 0 0   | 00  | 0  | 0 0  | 00   | 00  | 90.0  | 0.20   | 0.33   | 0.23   | 0.19   |
| 12.3                                    | 11.7                               | 11.3  | 15.5   | 7.6  | 14.1   | 106  | 6.7  | 4. 6   | 6.0  | 7.9   | 9  | 10.6   | 10.5  | 11.0  | 9.5  | 10.5   | 10.8   | 11.0  | 11.7  |  | 18.8   | 28.0   | 27.5   |
| 0.368                                   | 0.319                              | 0 320   | 0.637  | 0.197  | 0.196  | 0.107  | 0.388  | 0.407  | 0.397  | 0.554   |  |  |   |   | 0.308  | 0.332  | 0.280  | 0.310   | 0.300   | 0.282  | 0.362  | 0.240  | 0.298  |
|   | 00 0,000 0,000 7.54 30 0 0,11 12.3 | 86 0,0009 0,0005 7.04 30 0 011 12.3<br>00 0,0006 0 7.56 10 0 0.09 12.7<br>50 0,0005 0,0006 20.60 30 0 0.16 11.7 | 0,0009 0,0005 7,04 30 0 011 12.3<br>0,0006 0 7,56 10 0 0.09 12.7<br>0,0005 0,0005 20,60 30 0 0.16 11.3<br>0,0007 0,0006 21,00 40 0 0.16 11.3 | 80 0.0009 0.0005 7.04 30 0 0.11 12.3<br>50 0.0006 0 14.80 40 0 0.13 14.3<br>50 0.0005 0.0006 21.00 40 0 0.16 11.7<br>40 0.0007 0.0006 21.00 40 0 0.16 11.3<br>10 0.0019 0 13.40 60 0.139 0.52 15.5 | 00         0.000999         0.00099         0.00099         0.00099         0.00099         0.000999         0.00099         0.00099         0.00099         0.00099         0.00099         0.00099         0.00099         0.00099         0.00099         0.00099         0.00099         0.00099         0 | 0,00009 0,00009 7,04 30 0 0 11 123 0 0 0,00009 0,00009 0,00009 1,00009 0,00009 | 0,00009 0,00009 7,04 30 0 0 011 12.3 0 0 0 00009 0,00009 7,04 30 0 0 0 0 11 12.3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0,00009 0,00009 7,04 30 0 0 011 123 0 0 0 00009 0,000009 0,00009 0,00009 0,00009 0,00009 0,00009 0,00009 0,00009 0,000 | 0,00009 0,00009 7,54 30 0 011 123 0 0 0100009 0,00009 0,00009 7,54 10 0 0 011 127 0 0 0,00009 0,00009 0,00009 2,000 0 0,14 11,3 0 0 0,00009 0,00009 0,10 0 0,14 1,13 0 0 0,00009 0,00009 0,10 0 0,10 0,11 0 0,11 0 0 0,11 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0 0,11 0 0,11 0 0 0,11 0 0,11 0 0 0,11 0 0,11 0 0 0,11 0 0,1 | 0,00009 0,00009 7,04 30 0 011 123 0 0 0100009 0,00009 0,00009 7,04 30 0 0 011 127 0 0 0,00009 0,00009 0,00009 14,60 40 0 0 0,16 11,7 0 0,00009 0,00009 21,00 40 0 0,139 0,16 11,7 0 0,00009 0,00009 0,10 11,0 0 0,10 11,0 0 0,10 11,0 0 0,10 11,1 0 0,00009 0,00009 0,10 0 0,11 0,0 0 0,11 0,10 0 0,11 0,10 0 0,11 0,10 0 0,11 0,10 0 0,11 0,10 0 0,11 0,10 0 0,11 0,10 0 0,11 0,10 0 0,11 0,11 0 0,11 | 0,00009 0,00009 7,04 30 0 0 011 123 0 0 0 00009 0,00009 0,00009 1,00009 0,0000 | 0,00009 0,00005 7,004 30 0 0 11 12.3 0,00009 0 | 0,00009 0,00009 7,04 30 0 0 011 123 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0,00009 0,00005 7,54 100 0 0,11 12,3 14,0 0 0,14,60 0 0 0,14,60 0 | 0,00009 0,00005 7,54 100 0 0,11 12.3 14.0 0 0 14.60 0 0 0 0 0 14.7 12.3 14.0 0,00009 0,12.7 14.0 0 0,14.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0,00009 0,0000 | 0,00009 0,0000 | 0,00009 0,0000 7,504 90 0 0 11 123 0,00009 0,0000 7,504 90 0 0 11 123 0,00000 0 0,0000 7,504 10 0 0 0,100 11 123 0,00000 0,00000 2,0000 2,000 0 0,100 11 13 14,30 0,0000 0 0,100 11 13 14,30 0,00000 0 0,100 11 13 14,30 0,0000 0 0,100 11 13 14,30 0,0000 0 0,100 0 0,100 11 13 14,30 0,0000 0 0,100 0 0,100 11 13 14,30 0,0000 0 0,100 0 0,100 11 13 14,30 0,0000 0 0,100 0 | 0,00009 0,00005 0,756 10 0 0 0 11 123 0,00009 0,00005 0,756 10 0 0 0 11 123 0,00005 0,00005 0,756 10 0 0 0 11 123 0,00005 0,00005 0,756 10 0 0 0 11 123 0,00005 0,00005 0,100 0,100 0,100 0,11 1,12 0,00005 0,00005 0,100 0,100 0,11 0,11 0 | 0,00099 0,0009 7,54 90 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 000009 00000 754 30 0011 123 000009 000009 00000 754 143 000009 00000 754 143 000009 00000 754 143 000009 000009 000009 1340 60 0 | 000009 00000 754 90 0011 123 000009 00000 1480 40 0 0113 147 000000 00000 1340 60 0139 1437 1437 100000 00000 00000 1340 60 0113 147 117 117 117 117 117 117 117 117 117 | 000099 000005 754 30 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see lest methods at end of table)

| 99/06/72         1750         199902525         94/00559         150         44.10         0.0006         0.055         24.90           99/10/17         1750         199902525         94/01569         100         89.90         0.0005         0.0005         6.67           99/07/18         1775         199902525         94/00567         20         20         0.0005         6.67           99/07/18         1775         199902595         94/00567         20         20         0.0006         0.0005         6.67           99/07/17         1775         1999026940         94/00567         75         45.30         0.0006         0.0006         6.71           99/07/17         1340         199902940         94/00570         50         0.0006         0.0006         6.47           99/05/17         1340         199902940         94/00570         40         0.0005         0.0006         6.47           99/05/17         1430         1999029409         94/00571         40         36.30         0.0006         0.0006         6.47           99/05/17         1430         1999029409         94/00571         40         36.30         0.0007         0.0007         1.20           <   | 99/10/17 1750 199908557 94/0549 150 44.10 00006 0.0005 667 99/06/23 009/07/18 1750 199908557 94/0545 20 22.20 00006 0.0005 667 99/06/23 1550 199908599 94/00545 20 22.20 00006 0.0005 667 99/06/23 1550 199908599 94/00545 20 22.00 0.0006 0.0006 0.0006 22.00 99/06/23 1728 199912871 94/01570 50 30.70 0.0006 0.0006 22.00 99/06/20 1728 199912871 94/01570 50 31.00 0.0006  | 99/10/17 1750 1999024557 94/00549 150 44.10 0.0006 0.01560 99/10/17 1750 1999024655 94/00546 2.0 0.000 92.2 0.0005 0.0005 0.0005 99/00/18 17720 1999024655 94/00546 2.0 0.0005 0.0005 0.0005 0.0005 99/00/18 17720 1999024655 94/00547 2.0 0.0005 0.0005 0.0005 0.0005 99/00/18 17720 199902695 94/00547 2.0 0.0005 0. | 89008/77 1750 199908557 94/00599  4.5 99/08/72 0950 199908557 94/00599  99/08/72 1750 199910947 94/00639  99/08/72 1750 199910947 94/00639  99/08/72 1750 1999089177 94/00615  99/08/72 1750 199908914 94/00615  99/08/72 1750 19990891 94/00615  99/08/72 1750 19990891 94/00615  99/08/72 1750 19990891 94/00615  99/08/72 1500 19990891 94/00616  99/08/72 1500 19990891 94/00617  99/08/72 1500 19990891 94/00618  99/08/72 1500 19990891 94/00618  99/08/72 1500 19990891 94/00618  99/08/72 1500 19990891 94/00628  99/08/72 1500 19990891 94/00628  99/08/72 1500 19990891 94/00628  99/08/72 1500 19990891 94/00628  99/08/72 1500 19990891 94/00628  99/08/72 1500 19990891 94/00628  99/08/72 1500 19990891 94/00628  99/08/72 1500 19990891 94/00628  99/08/72 1500 19990891 94/00628  99/08/72 1500 19990891 94/00628  99/08/72 1500 19990891 94/00628  99/08/71 1700 19990891 94/00628  99/08/71 1700 19990891 94/00628  99/08/71 1700 19990891 94/00628  99/08/71 1700 1999089999999999999999999999999999999   | Station # | Date<br>y/m/d | Time | 00E Lab # | DOE Field # | Color units | Cond<br>uS/cm | 8 5 C  | 2 50 2 | 10c<br>26 0<br>36 0 | E. coli | ofe<br>Omit | €   | and as made | mg/l as mg/l as mg/l as Fe CaCO3 |
|--|--|--|--|-----------|---------------|------|-----------|-------------|-------------|---------------|--------|--------|---------------------|---------|-------------|-----|-------------|----------------------------------|
| 99/10/17         1750         199912826         94/01569         100         89 90         0.0029         0.009         24 90           99/09/12         1750         199906895         94/00478         30         32 30         0.0006         0.0005         667           99/09/12         1750         199906895         94/00603         20         30 70         0         0.0005         667           99/09/26         1729         199906897         94/00603         75         45 30         0.0006         0.0005         22 00           99/09/26         1729         199906897         94/00677         52         37 30         0.0011         0.0006         22 00           99/09/27         1105         199906407         94/00675         15         32 40         0.0005         0.000         12 80           99/09/27         11340         199909409         94/00675         16         36 30         0.0005         0.0005         64 75           99/09/27         1135         199909409         94/00677         20         10005         0.0005         0.0005         11 80           99/09/27         1135         199909409         94/00677         20         10000         0.0001  | 99/06/22         0950         199912826         94/00428         30         32.2 mode         0.0005         6.67           99/04/22         1750         199906896         94/00428         30         32.2 mode         0.0005         6.67           99/04/22         1750         199906896         94/00436         20         22.8 mode         0.0005         6.7 mode         20.00         6.67           99/04/22         1750         199912871         94/01570         50         37.30         0.0011         0.0005         5.00         5.00           99/04/27         1750         199912877         94/01570         50         37.30         0.0001         0.0005         5.11           99/04/27         1750         19901287         94/01570         50         32.40         0.0005         0.0005         5.11           99/05/27         1750         19901287         94/01577         40         36.00         0.0005         6.71           99/05/27         1750         1750         0.0005         0.0005         0.0005         0.0005         17.2 mode           99/05/27         1750         1750         0.0005         0.0005         0.0005         17.2 mode           99/05/2  | 99/06/72         1750         199912826         94/01/569         100         89 90         0 00029         0 0005         24 90           99/06/72         150         199908696         94/00/450         20         32 20         0 0006         0 0005         568           99/06/22         1729         199908696         94/00/570         20         32 30         0 0006         0 0006         568           99/06/26         1729         199908697         34/00/570         20         30 70         0 0006         50         568           99/06/20         1726         199906947         94/00/570         27         30 70         0 0001         10 0006         511           99/06/20         1105         199906947         94/00/570         40         36 30         0 0001         0 0006         511           99/06/20         1105         199906947         94/00/570         40         36 30         0 0006         0 0006         511           99/06/20         1105         199906947         94/00/577         40         110 0000         0 0000         425           99/06/20         1105         1100         110 0000         110 0000         110 0000         110 000  | 99/10/17 1750 1999/12626 94/00/28 99/00/17 1750 1999/12626 94/00/28 99/09/26 1750 1999/06595 94/00/28 99/09/26 1750 1999/06595 94/00/28 99/09/26 1750 1999/06595 94/00/26 99/09/26 1773 1999/10847 94/00/20 99/09/20 11/25 1999/10847 94/00/20 99/09/20 11/25 1999/05814 94/00/20 99/09/20 11/25 1999/05814 94/00/20 99/09/20 11/25 1999/05813 94/00/20 99/09/20 11/25 1999/05813 94/00/20 99/09/20 11/25 1999/05813 94/00/20 99/09/20 11/25 1999/05/20 94/00/20 99/09/20 11/25 1999/05/20 94/00/20 99/09/20 11/25 1999/05/20 94/00/20 99/09/20 11/25 1999/05/20 94/00/20 99/09/20 11/25 1999/05/20 94/00/20 99/09/20 11/25 1999/05/20 94/00/20 99/09/20 11/25 1999/05/20 94/00/20 99/09/20 11/25 1999/05/20 94/00/20 99/09/20 11/25 1999/05/20 94/00/20 99/09/20 11/25 1999/05/20 94/00/20 99/09/20 11/25 1999/05/20 94/00/20 99/09/20 11/20 1999/06/20 94/00/20 99/09/20 11/20 1999/06/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 11/20 1999/09/20 94/00/20 99/09/20 94/00/20 99/09/20 94/00/20 99/09/20 94/00/20 99/09/20 94/00/20 99/09/20 94/00/20 99/09/20 94/00/20 99/09/20 94/00/20 99/09/20 94/00/20 99/09/20 94/00/20 99/09/20 94/00/20 94/00/20 99/09/20 9 | SC-CAN1   | 99/08/17      | 2030 | 199908557 | 94/00559    | 35          | 44.10         | 0.0006 | 0      | 15.60               | 0       |             | 0   |             | 0                                |
| 99/06/72         1350         199904895         94/00426         20         32.20         0.0006         0.0005         5.68           99/07/18         1720         199906959         94/00456         20         32.80         0         0         5.68           99/04/27         1750         19990847         94/01570         20         37.30         0.0001         0.0006         2.05           99/04/27         1750         199912871         94/01570         26         37.30         0.0011         0.0006         2.05           99/04/27         1750         199912871         94/01570         50         37.30         0.0011         0.0006         2.05           99/06/27         1105         199902804         99/06/27         40         36.30         0.0006         0.0006         2.11           99/06/27         1105         199902804         99/06/27         40         36.30         0.0006         0.0006         4.74           99/06/27         1105         199902804         99/06/27         40         107.00         0.0006         0.0006         2.11           99/06/27         1105         1100         31.00         0.0006         0.0006         0.0006         0.00   | 99/07/18         1720         199904885         94/00428         30         32.20         0.0006         0.0005         667           99/07/18         1720         199906855         94/00645         20         30.70         0.0006         5.68           99/07/18         1725         199910847         94/01570         50         37.30         0.0001         0.00         5.68           99/07/07         1726         199910847         94/01570         50         37.30         0.0001         0.00         5.68           99/07/07         1340         199905814         94/00570         40         36.30         0.0005         0.0005         5.11           99/07/07         1340         199905814         94/00570         40         36.30         0.0005         0.0005         5.11           99/07/07         1340         199905814         94/00570         40         36.30         0.0005         0.0005         5.11           99/07/07         1340         199905814         94/00571         40         36.30         0.0001         0.0005         7.44           99/07/07         1340         139905814         94/00574         40         13.00         0.0005         0.001         <   | 99/06/23         1990/16         1990/26         94/00/26         30         32 20         0 0006         0 0006         667           99/07/18         152         122 80         0 0006         0 0006         568         94/07/18         15         32 80         0 0006         0 0006         568         94/07/18         15         32 80         0 0006         0 0006         568         94/07/19         15         30 7 30         0 0006         0 0006         568         94/07/19         15         32 80         0 0006         0 0006         568         368         94/07/19         30 7 30         0 0001         0 0006         568         368         368         369  | 99/08/72 0950 199904695 94/00428 99/08/7/18 1720 199908903 94/00624 99/08/22 1550 199908903 94/00603 99/08/22 1720 199908903 94/00603 99/08/22 1720 199908903 94/00615 99/08/22 1720 1999089197 94/00615 99/08/22 1720 199908919 94/00615 99/08/22 1720 199908919 94/00616 99/08/22 1720 199908919 94/00616 99/08/22 1720 199908919 94/00617 99/08/22 1720 199908919 94/00617 99/08/22 1720 199908919 94/00617 99/08/22 1720 199908919 94/00618 94/00618 99/08/22 1720 199908991 94/00618 99/08/22 1720 199908991 94/00618 99/08/22 1520 199908991 94/00620 99/08/22 1520 199908991 94/00601 99/08/22 1520 199908991 94/00601 99/08/22 1520 199908991 94/00602 99/08/22 1520 199908991 94/00601 99/08/22 1520 199908991 94/00602 99/08/22 1520 199908991 94/00602 99/08/22 1520 199908991 94/00622 94/00602 99/08/22 1520 199908991 94/00602 99/08/22 1520 199908991 94/00602 99/08/22 1520 199908991 94/00602 99/08/22 1520 1999089991 94/00602 99/08/22 1520 199908999999999999999999999999908999  | SC-KING2  | 99/10/17      | 1750 | 199912826 | 94/01569    | 100         | 89.90         | 0.0029 | 0.009  | 24.90               | 8       |             | 0   | 0 0.13      |                                  |
| 98007/18 1720 199900555 94/00502 20 32 70 0 0 0 0 568 9607/18 1725 199900555 94/00502 20 30 70 0 0 0 0 568 96090718 1725 199900557 94/01500 75 45 30 0 0 0 0 0 0 568 96090718 1715 199912971 94/01570 50 37.30 0 0 0 0 0 0 511 0 0 0 0 0 0 0 0 0 0 0   | 99/06/22         1520         199908659         94/00545         20         32.80         0         0         568           99/08/22         1556         199908697         94/015/0         75         45.30         0.0005         5.05           99/08/25         1556         199910847         94/015/0         75         45.30         0.0006         0.000         5.00           99/08/20         1105         199908407         94/00615         15         32.40         0.0005         0.000         5.11           99/08/20         1105         199908408         94/00615         15         32.40         0.0005         0.000         5.11           99/08/20         1135         199908408         94/00615         15         32.40         0.0005         0.000         5.11           99/08/20         1135         199908408         94/00617         10         36.30         0.0005         4.95           99/08/20         1136         199908408         94/00617         20         102.00         0.0006         4.95           99/08/20         1136         199908594         94/00617         20         102.00         0.0001         0.0005         7.44           99/08/20 <td>99/09/20         1720         199906955         94/006545         20         20         0         568           99/09/20         1720         199906955         94/00650         75         45.30         0.0006         0.568           99/09/20         175         199906940         94/01570         50         37.30         0.0001         0.0006         2.00           99/09/20         1105         199906940         94/00675         15         32.40         0.0005         0.0006         6.47           99/08/20         1105         199906940         94/00675         40         36.30         0.0006         6.47           99/08/20         1105         199906940         94/00675         40         36.30         0.0006         6.47           99/08/20         1105         199906940         94/00676         40         36.30         0.0006         6.47           99/08/20         1105         199906940         94/00677         40         36.30         0.0006         6.47           99/08/20         1106         199906940         94/00674         40         36.00         37.40         37.40           99/08/20         1106         106         106         106</td> <td>99/07/18 1720 199906595 94/00645 99/07/18 1720 199910947 94/00603 99/08/22 1759 199910947 94/00603 99/08/22 1759 199910947 94/00603 99/08/22 1715 199910947 94/00615 99/08/22 1715 199910947 94/00615 99/08/22 1720 199906814 94/00617 99/08/22 1720 199906813 94/00617 99/08/22 1620 199906813 94/00617 99/08/22 1620 199906891 94/00617 99/08/22 1620 199906893 94/00617 99/08/22 1620 199906893 94/00617 99/08/22 1520 199906893 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 99/08/24 94/00602 99/08/24 99/08/24 94/00602 99/08/24 99/08/24 94/00602 99/08/24 94/00602 99/08/24 99/08/24 94/00602 99/08/24 94/00602 99/08/24 99/08/24 94/00602 99/08/</td> <td>SC-RGLEAS</td> <td>99/06/23</td> <td>0980</td> <td>199904895</td> <td>94/00428</td> <td>8</td> <td>32 20</td> <td>0.0006</td> <td>8</td> <td>6.67</td> <td>9</td> <td></td> <td>0</td> <td>0</td> <td></td> | 99/09/20         1720         199906955         94/006545         20         20         0         568           99/09/20         1720         199906955         94/00650         75         45.30         0.0006         0.568           99/09/20         175         199906940         94/01570         50         37.30         0.0001         0.0006         2.00           99/09/20         1105         199906940         94/00675         15         32.40         0.0005         0.0006         6.47           99/08/20         1105         199906940         94/00675         40         36.30         0.0006         6.47           99/08/20         1105         199906940         94/00675         40         36.30         0.0006         6.47           99/08/20         1105         199906940         94/00676         40         36.30         0.0006         6.47           99/08/20         1105         199906940         94/00677         40         36.30         0.0006         6.47           99/08/20         1106         199906940         94/00674         40         36.00         37.40         37.40           99/08/20         1106         106         106         106  | 99/07/18 1720 199906595 94/00645 99/07/18 1720 199910947 94/00603 99/08/22 1759 199910947 94/00603 99/08/22 1759 199910947 94/00603 99/08/22 1715 199910947 94/00615 99/08/22 1715 199910947 94/00615 99/08/22 1720 199906814 94/00617 99/08/22 1720 199906813 94/00617 99/08/22 1620 199906813 94/00617 99/08/22 1620 199906891 94/00617 99/08/22 1620 199906893 94/00617 99/08/22 1620 199906893 94/00617 99/08/22 1520 199906893 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1520 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/22 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 94/00602 99/08/24 1445 199906891 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 94/00602 99/08/24 99/08/24 94/00602 99/08/24 99/08/24 94/00602 99/08/24 99/08/24 94/00602 99/08/24 94/00602 99/08/24 99/08/24 94/00602 99/08/24 94/00602 99/08/24 99/08/24 94/00602 99/08/ | SC-RGLEAS | 99/06/23      | 0980 | 199904895 | 94/00428    | 8           | 32 20         | 0.0006 | 8      | 6.67                | 9       |             | 0   | 0           |                                  |
| 99,09,707 1340 199903407 94,00515 15 32.40 0.0006 0.0009 22.00 99,005,707 1340 199903407 94,00515 15 32.40 0.0001 0.0005 0.0009 22.00 99,005,707 1340 199903407 94,00515 15 32.40 0.0005 0.0001 0.0005 0.0007 12.80 99,005,707 1340 199903408 99,00516 10 31.00 0.0005 0.0007 0.0007 12.20 99,005,707 1430 199903408 94,00547 40 102.00 0.0001 0.0005 0.0007 7.43 99,005,707 1320 199903409 94,00544 40 103.00 0.0001 0.0005 7.44 99,005,718 1645 199903499 94,00547 60 107,00 0.0001 0.0005 7.44 99,005,718 1635 199903499 94,00547 60 107,00 0.0001 0.0005 7.40 99,005,718 1635 199903499 94,00547 20 107,00 0.0001 0.0005 7.40 99,005,718 1635 199903499 94,00547 30 107,00 0.0001 0.0005 7.40 99,005,718 1635 199903499 94,00547 30 107,00 0.0001 0.0007 7.40 99,005,718 1635 199903499 94,00547 30 107,00 0.0001 0.0007 7.40 99,005,718 1635 199903499 94,00547 30 140 0.0001 0.0001 0.0005 7.40 99,005,718 1635 199903499 94,00547 30 140 0.0001 0.0001 0.0005 7.40 99,005,718 1635 199910349 94,00547 30 140 0.0001 0.0001 0.0005 7.40 99,005,718 1635 199903490 94,00547 140 0.0001 0.0001 0.0005 7.40 99,005,718 1635 199903490 94,00547 140 0.0001 0.0001 0.0005 7.40 99,005,718 1635 199903490 94,00547 140 0.0001 0.0001 0.0005 7.40 99,005,718 1635 199903490 94,00547 140 0.0001 0.0001 0.0005 7.40 99,005,718 1645 199903490 94,00547 140 0.0001 | 98/06/25 1730 199910947 94/0150 75 45.30 0.0009 0.0009 2.200 98/06/25 1730 199910947 94/0150 75 45.30 0.0001 0.0009 0.000   | 99/09/22 1729 1999/09/47 94/005/57 55 45 30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | 99/08/22 1730 199910947 94/01570 99/08/22 1730 199910947 94/01570 99/08/22 1730 199910947 94/01570 99/08/22 1730 199910947 94/00615 99/08/22 1736 199910947 94/00615 99/08/22 1736 199909408 94/00615 99/08/22 1730 199909408 94/00617 99/08/22 1620 199909409 94/00617 99/08/22 1620 199909493 94/00617 99/08/22 1620 199909493 94/00617 99/08/22 1620 199909893 94/00617 99/08/22 1620 199908991 94/00617 99/08/22 1620 199908901 94/00602 99/08/22 1520 199908902 94/00602 99/08/22 1520 199908902 94/00602 99/08/22 1520 199908902 94/00602 99/08/22 1520 199908902 94/00602 99/08/22 1520 199908902 94/00602 99/08/22 1620 199908902 94/00602 99/08/22 1445 199908902 94/00602 99/08/22 1620 199908902 94/00602 99/08/22 1620 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 1445 199908908 94/00502 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 94/00502 99/08/22 99/08/22 94/00502 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 94/00502 99/08/22 99/08/22 99/08/22 94/00502 99/08/22 94/00502 99/08/22 94/00502 99/08/22 94/00502 99/08/22 94/00502 99/08/22 94/00502 99/08/22 94/00502 94/00502 99/08/22 94/ |           | 99/07/18      | 1720 | 199906595 | 94/00545    | 88          | 32.80         | 00     | 0 0000 | 5.68                | 8 5     |             | 00  |             | 900                              |
| 99008/20 1105 1999128/1 94/00615 15 32.40 0.0005 0 5.11 99008/20 1105 199908407 94/00615 15 32.40 0.0005 0 5.11 99008/20 1135 199908407 94/00615 15 32.40 0.0005 0 0.0006 6.47 99008/20 1125 199908408 99/00616 10 31.00 0.0005 0.0005 7.44 99008/20 1220 199908409 94/00617 20 102.00 0.0001 0.0005 7.44 99008/21 1220 199908409 94/00617 20 102.00 0.0001 0.0005 7.44 99008/21 1220 199908409 94/00617 20 102.00 0.0001 0.0005 7.44 99008/21 1220 199908409 94/00617 20 1102.00 0.0001 0.0005 7.44 99008/21 1220 199908491 94/00647 60 774.30 0.0001 0.0005 7.44 99008/15 1050 199908491 94/00647 20 1102.00 0.0001 0.0005 7.40 99008/15 1050 19990891289 94/00547 20 1102.00 0.0001 0.0005 7.40 99008/15 1050 19990891289 94/00648 70 775.00 0.0011 0.0005 7.40 99008/16 1050 19990891289 94/00648 70 55.10 0.0001 0.0001 0.0005 7.40 99008/16 1050 199908909 94/00648 70 56.00 0.0009 0.0005 7.40 99008/16 1050 199908909 94/00648 70 56.00 0.0009 0.0005 7.40 99008/22 1520 19990890 94/00642 70 56.00 0.0009 0.0005 7.40 99008/22 1520 19990890 94/00642 70 56.00 0.0001 | 99/07/07 1340 19990487 94/05/05 15 32.40 0.0005 0 5.11 99/08/05 1135 199904807 94/006/15 15 32.40 0.0005 0 0.0006 6.47 99/08/05 1135 19990480 94/006/16 10 31.00 0.0005 0 0.0006 6.47 95/08/08/07/07 1430 19990480 94/006/17 20 10.0006 0.0007 0.0007 0.0007 7.44 99/08/07/07 1430 19990480 94/006/17 20 10.0006 0.0007 0.0007 0.0007 7.44 99/08/07/07 1430 19990480 94/006/17 20 10.0006 0.0007 0.0007 0.0007 7.44 99/08/07/07 1325 19990480 94/006/17 20 10.000 0.0000 0.0007 0.0001 7.76 99/08/07/07 1325 19990480 94/006/17 20 10.0007 0.0001 0.0007 7.40 99/08/07/07 1325 199901264 94/006/18 20 10.0007 0.0001 0.0007 0.0001 7.76 99/08/07/07 1325 199901264 94/006/18 20 10.0007 0.0001 0.0007 0.0001 7.40 99/08/07/07 19990480 94/006/18 1635 199901264 94/006/18 20 10.0007 0.0001 0.0007 0.0001 0.0007 0.0001 0.0007 0.0001 0.0007 0   | 99/06/20 1105 1999/2971 94/015/70 50 37.30 0.0011 0.005 0.12.80 99/06/20 1105 1999/2971 94/005/5 15 32.40 0.0005 0.011 0.0005 0.12.80 99/06/20 1135 1999/2940 99/005/16 10 31.00 0.0005 0.0005 0.4.95 7.00 99/06/20 1125 1999/2940 99/005/4 40 94.60 0.0005 0.0005 0.0007 7.44 99/06/20 1220 1999/2940 99/005/4 40 103.00 0.0009 0.0000 0.0001 98/06/20 99/06/20 1220 1999/2940 99/005/4 40 103.00 0.0009 0.0000 0.0001 98/06/20 99/06/20 1220 1999/2940 99/005/4 40 103.00 0.0009 0.0000 0.0001 98/06/20 1220 1999/2049 99/005/4 40 103.00 0.0009 0.0000 0.0001 98/06/20 1999/2049 99/005/4 40 103.00 0.0001 0.0000 0.0001 0.0000 0.0001 0.0000 0.0000 0.0001 0.0000 0.0000 0.0001 0.0000  | 99/08/707 1340 199905814 94/00615 99/08/70 1105 199905814 94/00615 99/08/70 1135 199905814 94/00603 99/08/70 1135 199905814 94/00603 99/08/70 1135 199905814 94/00603 99/08/70 1135 199905814 94/00603 99/08/70 1135 199905814 94/00604 99/08/10 1135 199905841 94/00607 99/08/10 1135 199905841 94/00607 99/08/10 1135 199905891 94/00607 99/08/10 1135 199905891 94/00607 99/08/10 1135 199905891 94/00607 99/08/10 1135 199905891 94/00607 99/08/10 1135 199905891 94/00602 99/08/22 1520 199908901 94/00602 99/08/22 1520 199908901 94/00602 99/08/22 1520 199908901 94/00602 99/08/22 1520 199908901 94/00602 99/08/22 1520 199908901 94/00602 99/08/22 1445 199908901 94/00602 99/08/22 1445 199908901 94/00602 99/08/22 1445 199908900 94/00602 99/08/22 1445 199908900 94/00602 99/08/22 1445 199908900 94/00602 99/08/20 1445 199908900 94/00602 99/08/20 1445 199908900 94/00602 99/08/20 1445 199908900 94/00602 94/00602 99/08/20 1445 199908900 94/00602 99/08/20 1445 199908900 94/00602 99/08/20 1445 199908900 94/00602 99/08/20 1445 199908900 94/00602 99/08/20 1445 199908900 94/00602 99/08/20 1445 199908900 94/00602 99/08/20 1445 199908900 94/00602 99/08/20 1445 199908900 94/00602 99/08/20 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 99/08/20 1445 1445 199908900 94/00602 94/00602 99/08/20 1445 1445 199908900 94/00602 9 |           | 99/08/22      | 1550 | 199908903 | 94/00603    | 5 %         | 45.30         | 0 0000 | 0 0000 | 22 00               | 10      |             | 00  |             | 0.19                             |
| 99/06/20         1105         199908407         94/00615         15         32.40         0.0005         0         5.11           99/07/07         1340         199905814         94/00615         15         32.40         0.0005         0.0006         6.47           99/06/20         1135         199905813         94/00616         40         36.30         0.0005         0.0006         4.95           99/06/20         1220         199905813         94/00617         20         102.00         0.0006         0.0007         7.43           99/06/20         1220         199905844         94/00617         20         102.00         0.0001         7.44           99/06/20         165         199906841         94/00644         40         103.00         0.0001         7.74           99/06/20         169907776         94/00647         20         107.00         0.0001         7.74           99/06/21         1635         199906841         94/00647         20         107.00         0.0001         7.40           99/06/21         1635         19991284         94/01378         20         110.00         0.0011         0.0005         7.40           99/07/16         1635         <   | 99/08/20         1105         199903407         94/00615         15         32.40         0.0005         0         511           99/08/20         11340         199903614         94/00503         40         36.30         0         0         647           99/08/20         1135         199903613         94/00504         40         36.30         0         0         0         4.95           99/08/20         1125         199903613         94/00504         40         84.60         0.0005         0.0005         4.95           99/08/20         1220         199903613         94/00504         40         84.60         0.0006         0.0006         8.86           99/08/20         1220         199903694         94/00504         40         162.00         0.0001         0.0005         7.44           99/08/20         1220         199903694         94/00544         40         173.00         0.0001         0.0005         7.44           99/08/20         1020         1020         0.0001         0.0001         0.0005         7.44           99/08/20         1020         1020         0.0001         0.0001         0.0001         4.95           99/08/20         1020<  | 98/09/707 1340 199905814 94/00615 15 32.40 0.0005 0.0006 6.47 98/09/707 1340 199905814 94/00615 16 31.00 0.0005 0.0005 0.0005 0.4.55 0.0008/20 1135 199905813 94/00617 20 102.00 0.0001 0.0005 7.44 0.0008/20 1220 199905813 94/00617 20 102.00 0.0011 0.0005 7.44 0.0008/20 1320 19990778 94/00617 20 102.00 0.0011 0.0005 7.44 0.0008/20 1320 19990778 94/00617 20 100.0009 0.00011 0.0005 7.44 0.0008/20 1325 19990778 94/00618 20 100.000 0.00011 0.0005 7.40 0.0008/20 1325 19990778 94/00618 20 100.000 0.00011 0.0005 7.40 0.0008/20 1325 19990778 94/00618 20 100.000 0.00011 0.0005 7.40 0.00011 0.00011 0.0005 7.40 0.00011 0.00011 0.0005 7.40 0.00011 0.00 | 99/05/707 1340 199905814 94/00615<br>99/05/707 1340 199905814 94/00603<br>99/06/72 1320 19990499 94/00617<br>99/06/72 1320 19990494 94/00617<br>99/08/70 1325 199906594 94/00617<br>99/08/70 1325 199906594 94/00618<br>99/08/70 1325 199906594 94/00618<br>99/08/71 1325 199906594 94/00618<br>99/08/71 1325 199906593 94/00618<br>99/08/72 1520 199906593 94/00618<br>99/08/72 1520 199906593 94/00618<br>99/08/72 1520 199906593 94/00601<br>99/08/72 1520 199906593 94/00601<br>99/08/72 1520 199906903 94/00602<br>99/08/72 1520 199906891 94/00602<br>99/08/72 1700 199906815 94/00602<br>99/08/72 1700 199906891 94/00602<br>99/08/72 1700 199906891 94/00602   |           | 99/10/18      | 1715 | 199912971 | 94/01570    | 8 8         | 37.30         | 0.0011 | 0      | 12.80               | 0       |             | 0   | 0 00        |                                  |
| \$ 99/05/70         1340         199902814         94/00503         40         36.30         0         0.0005         6.47           99/05/70         1135         199902808         99/00616         10         31.00         0.0005         0         4.95           99/05/70         1220         199902803         94/00507         20         102.00         0.0006         0.0007         7.43           99/06/73         1220         1999024894         94/00577         20         102.00         0.0001         0.0005         7.44           99/06/73         1999024894         94/00547         60         74.30         0.0009         0.0007         7.43           99/08/76         199902491         94/00547         60         74.30         0.0001         7.74           99/08/76         199902491         94/00547         60         774.30         0.0007         0.0011         7.76           99/08/76         199902401         94/00547         20         107.00         0.0011         0.0005         7.40           99/08/76         199902803         94/01587         20         107.00         0.0011         0.0005         7.40           99/08/77         199900803         19990280   | \$ 99/07/07         1340         199903614         94/00503         40         36.30         0         00006         6.47           99/08/07         1135         199903408         99/00516         10         31.00         0.0005         0.0005         4.95           99/08/07         1220         199903409         99/00517         20         102.00         0.0005         0.0007         7.44           99/08/07         1220         199903409         94/00617         20         102.00         0.0001         0.0007         7.44           99/08/07         1220         199903409         94/00617         20         102.00         0.0001         0.0007         7.44           99/08/07         139903409         94/00427         60         74.30         0.0009         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0005         7.44         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001   | 5         99/08/20         1340         199905814         94/005/3         40         36.30         0         0.0006         6.47           99/08/20         1135         199905813         94/005/61         10         31.00         0.0005         0         4.95           99/08/20         1220         199905409         94/005/61         20         10.0006         0.0007         7.43           99/08/20         1220         199905499         94/005/7         20         102.00         0.0006         0.0007         7.44           99/08/20         1220         199905499         94/005/7         20         102.00         0.0001         0.0007         7.44           99/08/20         1220         199905499         94/005/4         40         107.00         0.0009         0.0011         7.74           99/08/20         1220         199905499         94/005/8         20         1107.00         0.0001         7.40         1.70           99/08/20         1220         199905499         94/005/8         20         1107.00         0.0001         0.0011         0.0005         7.44           99/08/20         1220         199905499         94/005/8         140         0.0011   | 99A07/07         1340         199905814         94/00503           99A08/707         1135         199905814         94/005016           99A08/70         1430         199905813         94/00507           99A08/73         1220         1999058413         94/00617           99A07/18         1645         199905844         94/00617           99A08/73         1635         199906844         94/00427           99A08/73         1635         199906841         94/00427           99A08/73         1635         199910264         94/00427           99A08/74         1635         199906833         94/00426           99A08/76         1653         199906833         94/00426           99A08/76         1645         199910264         94/00433           99A08/76         1645         199910345         94/00433           99A08/76         1645         199910345         94/00433           99A08/76         1700         199906815         94/00402           99A08/76         1700         199906815         94/00402           99A08/76         1700         199906815         94/00402           99A08/77         1700         199906815         94/00402  | SC-RWOOD  | 99/08/30      | 1105 | 199909407 | 94/00615    | 15          | 32.40         | 0 0000 | 0      | 5.11                | <10     |             | 0   | 0.08        |                                  |
| 99/06/70         1135         199908408         99/00616         10         31.00         0.0005         0         4.95           99/06/70         1430         199908403         94/00617         20         102.00         0.0006         0.0007         7.44           99/06/70         1220         199908403         94/00617         20         102.00         0.0001         0.0005         7.44           99/06/70         1220         199908410         94/00617         20         174.30         0.0001         0.0001         7.44           99/06/70         1325         199908410         94/00548         40         103.00         0.0001         7.76           99/06/70         1325         199902410         94/00548         20         110.00         0.0011         7.76           99/06/70         1325         199910264         94/01587         20         179.10         0.0001         7.44           99/06/70         1635         199910264         94/01587         20         179.10         0.0001         7.40           99/06/70         1635         199910264         94/01587         20         179.10         0.0005         7.40           99/06/70         1630   | 99/06/70         1135         199908408         99/00616         10         31.00         0.0005         0         4.95           99/06/70         1220         199908403         94/00617         20         102.00         0.0006         0.0007         7.44           99/06/70         1220         199908403         94/00617         20         102.00         0.0001         0.0005         7.44           99/06/70         1220         19990840         94/00617         20         174.30         0.0006         0.0001         8.86           99/06/71         1620         199908594         94/00647         60         74.30         0.0009         0.0001         8.86           99/08/15         1625         1999010264         94/00648         20         110.00         0.0001         8.86           99/08/15         1625         199910264         94/00648         20         110.00         0.0001         0.0001         7.44           99/08/15         1625         199910264         94/00648         20         110.00         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001         0.0001<  | 99/06/20 1135 199909408 99/00616 10 3100 0,0005 0 4,95 99/06/20 1220 199905813 94/00504 40 84.60 0,0006 0,0007 7.43 99/06/20 1220 1999069409 94/00547 20 102.00 0,0011 0,0005 7.44 99/06/20 1220 1999069409 94/00544 40 103.00 0,0001 0,0005 7.44 99/06/20 1325 199906940 94/00548 20 107.00 0,0001 0,0005 7.76 99/06/20 1325 199910284 94/00548 20 107.00 0,0001 7.76 99/06/20 1325 199910284 94/00548 20 107.00 0,0001 7.76 99/06/20 1325 199910284 94/00548 20 107.00 0,0001 0,0005 7.40 99/06/20 1500 199906933 94/00568 70 51.40 0,001 0,0005 7.40 99/06/20 1500 199906939 94/00568 70 551.0 0,001 0,0005 7.40 99/06/20 1500 199906990 94/00568 140 55.60 0,0009 0,0005 1140 99/06/20 1500 199906990 94/00643 250 55.80 0,0009 0,0001 30.50 99/06/20 1500 199906900 94/00602 60 55.10 0,0001 0,0001 30.50 99/06/20 1700 199906915 94/00602 60 55.10 0,0001 0,0001 30.50 99/06/20 1700 199906915 94/00602 60 55.10 0,0011 0,0008 996 99/06/20 1700 199906915 94/00602 40 113.00 0,0011 0,0008 996  | 99/06/20 1135 199909408 99/00616 99/00616 99/006/20 1135 199909408 99/00617 99/06/20 1220 1999068913 94/00617 99/06/20 1220 199906891 94/00617 99/06/20 1325 199906891 94/00641 99/06/21 99/06/21 199906891 94/00641 99/06/21 99/06/22 199906891 94/00643 99/06/22 1500 199906891 94/00602 99/06/22 1500 199906891 94/00602 99/06/22 1500 199906891 94/00602 99/06/22 1500 199906891 94/00602 99/06/22 1500 199906891 94/00602 99/06/22 1500 199906891 94/00602 99/06/22 1500 199906891 94/00602 99/06/22 1500 199906891 94/00602 99/06/22 1500 199906891 94/00602 99/06/22 1445 199906892 94/00602 99/06/22 1445 199906892 94/00602 99/06/25 99/06/22 1445 199906892 94/00602 99/06/25 99/06/25 99/06/25 1445 199906896 94/00602 94/00506 94/00506 94/00506 94/00506 94/00506 94/00506 94/00506 94/00506 94/00506 94/00506 94/00506 94/00506  | SC.RGRAS  | 70/20/86      | 1340 | 199905814 | 94/00503    | 40          | 36.30         | 0      | 0.0006 | 6.47                | 10      |             | 0   | 0 0.26      |                                  |
| 99/07/07         1430         199905813         94/00504         40         64.60         0.0006         0.0007         7.43           99/08/02         1220         192903409         94/00617         20         102.00         0.0011         0.0005         7.44           99/08/02         1220         199904894         94/00617         60         74.30         0.0009         0.0001         8.86           99/08/07         19990476         94/00544         40         103.00         0.0001         0.001         7.76           99/08/07         1325         19990440         94/00548         20         110.00         0.0011         7.76           99/07/18         1635         199904024         94/01587         20         78.10         0.0011         7.70           99/07/18         1635         199904024         94/01587         20         78.10         0.0011         0.0005         7.40           99/07/18         1635         199904893         94/01587         20         51.40         0.0011         0.0005         7.40           99/07/18         1630         19990499         94/0543         70         49.80         0.0001         0.0005         11.40           <   | 99/07/07         1430         199905813         94/00504         40         64.60         0.0006         0.0007         7.43           99/08/07         1220         199904409         94/00617         20         102.00         0.0011         0.0005         7.44           99/08/07         1220         199904894         94/00617         60         74.30         0.0009         0.0006         8.86           99/08/07         19990489         94/00544         40         103.00         0.0001         7.74           99/08/07         19990489         94/00548         20         110.00         0.0011         7.76           99/08/07         19990489         94/00548         20         110.00         0.0011         7.76           99/08/07         1635         19990489         94/01587         20         179.10         0.0015         7.40           99/08/07         1635         199904893         94/00587         170         0.0011         0.0005         7.40           99/08/07         1635         199904893         94/00548         70         45.80         0.0001         0.0005         7.40           99/08/07         1645         199904897         94/00548         25.40 <td>99/07/07         1430         199909409         94/00604         40         84.60         0.0006         0.0007         7.43           99/08/09         1220         199909409         94/00617         20         102.00         0.0011         0.0005         7.44           99/08/02         1220         199909409         94/00617         20         102.00         0.0001         7.44           99/08/02         1325         199908410         94/00544         40         110.00         0.0001         7.76           99/08/02         1325         199908410         94/00548         20         1000         0.0011         0.0005         7.40           99/08/02         1325         19991269         94/00548         20         110.00         0.0011         0.0005         7.40           99/08/02         1525         19991269         94/00548         20         140         0.0011         0.0005         7.40           99/08/02         1500         199904991         94/00548         140         56.00         0.0001         0.0001         10.00           99/08/02         1500         199904991         94/00602         0.0011         0.0011         0.0001         0.0011         0.0001<td>98/07/07 1430 199905813 94/00504<br/>99/08/20 1220 199909409 94/00617<br/>99/08/22 0910 199904994 94/00544<br/>99/08/22 1525 19990594 94/00548<br/>99/08/22 1050 199906594 94/0058<br/>99/08/22 1525 199910264 94/0058<br/>99/08/22 1520 199908901 94/0058<br/>99/08/22 1520 199908901 94/00502<br/>99/08/22 1520 199908901 94/00502<br/>99/08/22 1520 199908902 94/00502<br/>99/08/22 1700 199908902 94/00502</td><td></td><td>99/08/30</td><td>1135</td><td>199909408</td><td>99/00/616</td><td>10</td><td>31.00</td><td>0.0005</td><td>0</td><td>4.95</td><td>410</td><td></td><td>o</td><td></td><td>0.07</td></td>   | 99/07/07         1430         199909409         94/00604         40         84.60         0.0006         0.0007         7.43           99/08/09         1220         199909409         94/00617         20         102.00         0.0011         0.0005         7.44           99/08/02         1220         199909409         94/00617         20         102.00         0.0001         7.44           99/08/02         1325         199908410         94/00544         40         110.00         0.0001         7.76           99/08/02         1325         199908410         94/00548         20         1000         0.0011         0.0005         7.40           99/08/02         1325         19991269         94/00548         20         110.00         0.0011         0.0005         7.40           99/08/02         1525         19991269         94/00548         20         140         0.0011         0.0005         7.40           99/08/02         1500         199904991         94/00548         140         56.00         0.0001         0.0001         10.00           99/08/02         1500         199904991         94/00602         0.0011         0.0011         0.0001         0.0011         0.0001 <td>98/07/07 1430 199905813 94/00504<br/>99/08/20 1220 199909409 94/00617<br/>99/08/22 0910 199904994 94/00544<br/>99/08/22 1525 19990594 94/00548<br/>99/08/22 1050 199906594 94/0058<br/>99/08/22 1525 199910264 94/0058<br/>99/08/22 1520 199908901 94/0058<br/>99/08/22 1520 199908901 94/00502<br/>99/08/22 1520 199908901 94/00502<br/>99/08/22 1520 199908902 94/00502<br/>99/08/22 1700 199908902 94/00502</td> <td></td> <td>99/08/30</td> <td>1135</td> <td>199909408</td> <td>99/00/616</td> <td>10</td> <td>31.00</td> <td>0.0005</td> <td>0</td> <td>4.95</td> <td>410</td> <td></td> <td>o</td> <td></td> <td>0.07</td>                             | 98/07/07 1430 199905813 94/00504<br>99/08/20 1220 199909409 94/00617<br>99/08/22 0910 199904994 94/00544<br>99/08/22 1525 19990594 94/00548<br>99/08/22 1050 199906594 94/0058<br>99/08/22 1525 199910264 94/0058<br>99/08/22 1520 199908901 94/0058<br>99/08/22 1520 199908901 94/00502<br>99/08/22 1520 199908901 94/00502<br>99/08/22 1520 199908902 94/00502<br>99/08/22 1700 199908902 94/00502   |           | 99/08/30      | 1135 | 199909408 | 99/00/616   | 10          | 31.00         | 0.0005 | 0      | 4.95                | 410     |             | o   |             | 0.07                             |
| 99/08/70         1220         199908409         94/00617         20         102.00         0.0011         0.0005         7.44           99/08/70         1220         1999084894         94/00547         60         74.30         0.0009         0.0006         8.86           99/08/71         199908594         94/00544         40         103.00         0.0007         0.0011         8.25           99/08/73         199908410         94/00548         20         110.00         0.0017         0.0011         7.76           99/08/73         199908410         94/00548         20         110.00         0.0017         0.0001         7.76           99/08/74         1635         199901284         94/01587         20         77.10         0.0017         0.0005         7.40           99/07/18         1635         1999012969         94/01587         20         77.10         0.0011         0.0005         7.40           99/07/18         1630         1999012969         94/00547         70         45.00         0.0001         0.0005         7.40           99/08/26         150         1999019945         94/00543         70         45.00         0.0001         0.0001         0.0005         11  | 99/08/70 1220 199908409 94/00617 20 102.00 0.0011 0.0005 7.44  99/07/18 1645 199908594 94/00547 60 74.30 0.0009 0.0006 8.86  99/07/18 1645 199908594 94/00548 20 103.00 0.0009 0.0001 8.82  99/08/70 1325 199902410 94/00518 20 110.00 0.0001 0.0001 7.76  99/08/70 1925 199904893 94/00426 140 0.001 0.0001 0.0005 7.39  99/08/72 1000 199908903 94/00426 140 45.70 0.0011 0.0005 7.40  99/08/72 1500 199908901 94/00437 20 57.10 0.001 0.0005 11.40  99/08/72 1500 199908901 94/00483 250 54.80 0.0001 0.0007 16.70  99/08/72 1500 199908902 94/00483 250 54.80 0.0001 0.0007 0.0001 30.80  99/08/72 1520 199908902 94/00483 250 54.80 0.0001 0.0007 1.100  99/08/72 1500 199908902 94/00602 60 56.10 0.0008 0.0005 11.30  99/08/72 1500 199908902 94/00602 60 56.10 0.0008 0.0006 13.20  99/08/72 1700 19990891 94/00482 200 56.10 0.0001 0.0007 4.23   | 99/08/70 1220 199904894 94/00617 20 102.00 0.0011 0.0005 7.44 99/08/71 1645 199906594 94/00427 60 74.30 0.0009 0.0006 8.86 99/08/18 1645 199906594 94/00428 4.0 103.00 0.0009 0.0006 8.86 99/08/18 1635 199902410 94/00618 20 110.00 0.0011 0.0005 7.39 99/08/12 1635 199910264 94/00428 140 45.70 0.0011 0.0005 7.39 99/08/18 1635 199904893 94/00428 140 45.70 0.0011 0.0005 7.40 99/08/12 1500 199908901 94/00643 70 46.80 0.0001 0.0005 7.40 99/08/12 1500 199908901 94/00601 40 56.80 0.0009 0.0007 16.70 99/08/12 1500 199908902 94/00602 60 56.10 0.0008 0.0007 11.90 99/08/12 1500 199908902 94/00602 60 56.10 0.0008 0.0001 30.80 99/08/12 1500 199908902 94/00602 60 56.10 0.0008 0.0007 4.23 99/08/12 1500 199908902 94/00602 60 56.10 0.0008 0.0007 4.23 99/08/12 1500 199908902 94/00602 40 124.00 0.0013 0.0011 30.50  | 99/08/20 1220 19990409 94/00617<br>99/08/20 1220 199904894 94/00427<br>99/08/21 1645 199906594 94/00544<br>99/08/11 1645 199906594 94/0054<br>99/08/12 1050 19990777 94/01547<br>99/08/22 1500 199906891 94/00456<br>99/08/22 1500 199908901 94/0043<br>99/08/22 1520 199908901 94/0043<br>99/08/22 1520 199908902 94/00602<br>99/08/22 1520 199908902 94/00602<br>99/08/22 1520 199908903 94/00502<br>99/08/22 1700 199908903 94/00502<br>99/08/22 1445 199908903 94/00502  | SC. PRUTI | 701/0/20      | 1430 | 199905813 | 94/00504    | 9           | 84.60         | 0.0006 | 0.0007 | 7.43                | 29      |             | 0   | 0 0.21      |                                  |
| 99/06/23         0910         199904894         94/00427         60         74.30         0.0009         0.0006         8.86           99/07/18         1645         199906594         94/00544         40         103.00         0.0008         0.0011         8.82           99/08/16         1630         199907776         94/00544         40         103.00         0.0009         0.0011         7.76           99/08/17         199910264         94/00518         20         110.00         0.0011         7.76           99/08/17         199910264         94/00518         20         110.00         0.0011         7.76           99/08/17         199910264         94/01587         30         51.40         0.0011         0.0005         7.40           99/08/17         199910264         94/01587         30         51.40         0.0011         0.0005         7.40           99/08/17         199906533         94/01587         30         51.40         0.0011         0.0001         0.0005         11.40           99/08/16         1650         199906533         94/00543         70         49.80         0.0009         0.0001         0.0005         11.40           99/09/16         1645  | 99/06/23         CG10         199904894         94/00427         60         74.30         0.0009         0.0006         8.86           99/07/18         1645         199906594         94/00544         40         103.00         0.0009         0.0001         7.76           99/08/30         1526         199906594         94/00548         20         110.00         0.0001         0.0001         7.76           99/08/30         1325         199904410         94/00548         20         110.00         0.0011         0.0005         7.39           99/08/31         1050         19991254         94/01587         20         79.10         0.0011         0.0005         7.76           99/08/23         1050         199904833         94/01587         20         79.10         0.0011         0.0005         7.40           99/07/18         1630         199904833         94/00543         70         40.90         0.0001         0.0005         7.40           99/07/18         1630         199904833         94/00543         70         40.90         0.0001         0.0001         0.0005         11.40           99/02/18         1645         199908301         94/00501         40         55.10  | 99/05/23         CG10         199904894         94/00427         60         74.30         0.0009         0.0006         8.86           99/07/18         1645         199906594         94/00544         40         103.00         0.0007         0.0011         7.76           99/08/30         1326         199906594         94/00548         20         110.00         0.0007         0.0011         7.76           99/08/30         1326         199910264         94/00548         20         110.00         0.0011         0.0005         7.39           99/08/30         1050         199910264         94/00543         20         140         0.0011         0.0005         7.40           99/08/31         1050         1999026593         94/00426         140         45.70         0.0011         0.0005         7.40           99/08/22         1500         1999026593         94/00426         140         46.50         0.0001         0.0005         7.40           99/08/22         1500         1999028903         94/00463         250         56.60         0.0001         0.0001         0.0005         11.40           99/09/26         1645         1999028902         94/00463         250         250<  | 99/06/23   |           | 99/06/30      | 1220 | 199909409 | 94/00617    | 20          | 102.00        | 0.0011 | 0.0005 | 7.44                | 10      |             | 0   |             | 0.08                             |
| 99/09/13         1645         199906594         94/00544         40         103.00         0.0001         0.001         0.001           99/09/16         1620         199906410         94/0378         20         170.00         0.0007         0.001         7.76           99/09/15         1620         1999040264         94/01547         20         79.10         0.0015         0.0005         7.36           99/09/15         1625         199910264         94/01547         20         79.10         0.0015         0.0005         7.36           99/09/17         1625         199902693         94/01587         20         79.10         0.0011         0.0005         7.40           99/09/17         1625         19990593         94/00543         70         46.80         0.0001         7.40           99/09/16         1705         19990593         94/00543         70         46.80         0.0009         0.005         11.40           99/09/26         1645         199910945         94/00463         25.6         57.10         0.0007         0.001         30.80           99/09/27         1520         199910945         94/00463         25.0         56.10         0.0001         0.0001  | 99/09/15 1645 199906594 94/00544 40 103.00 0.0007 0.0011 7.76 99/09/15 1050 199907778 20 170.00 0.0007 0.0011 7.76 99/09/15 1050 19990410 94/00548 20 110.00 0.0007 0.0011 7.76 99/09/15 1050 19990410 94/0547 20 79.10 0.0015 0.0005 7.39 99/09/15 1050 199904893 94/01587 30 51.40 0.0011 0.0005 7.40 99/09/15 1050 199904893 94/00543 70 49.80 0.0001 0.0007 16.70 99/09/15 1500 199908901 94/00543 70 49.80 0.0009 0.0005 11.40 99/09/15 1500 199908901 94/00501 40 55.10 0.0001 0.0007 16.70 99/09/15 1520 19990718 1645 199912970 94/00502 60 56.10 0.0008 0.0006 130.80 99/09/15 1520 199908902 94/00502 60 56.10 0.0008 0.0006 130.80 99/09/15 1500 199908902 94/00502 60 56.10 0.0008 0.0006 130.80 99/09/15 1700 199908915 94/00502 60 56.10 0.0008 0.0006 130.50 99/09/15 1700 199908915 94/00502 40 124.00 0.00013 0.0011 30.50  | 99/08/70 1325 199906594 94/0378 20 10000 0.0007 0.0011 7.76 99/08/70 1325 199906490 94/0378 20 110.00 0.0007 0.0011 7.76 99/08/15 1050 19990490 94/0618 20 110.00 0.0007 0.0011 7.78 99/08/15 1050 199904893 94/06287 20 75:10 0.0011 0.0005 7.40 99/08/12 1050 199904893 94/06287 30 51.40 0.0011 0.0005 7.40 99/08/12 1500 199904893 94/06283 740 46.80 0.0008 0.0005 7.40 99/08/12 1500 199906901 94/06543 70 46.80 0.0009 0.0005 11.40 99/08/12 1500 199906891 94/06543 70 46.80 0.0009 0.0005 11.40 99/08/12 1500 199906891 94/0662 20 55.10 0.0011 0.0011 0.0011 0.0011 0.0011 0.0011 0.0011 0.0011 0.0011 0.0011 0.0011 0.0011 0.0011 0.0011 0.0011 0.0001 0.0011 0.00 | 98/07/18 1645 199906594 94/00544 94/00546 94/00548 99/08/07 1630 199907778 94/00548 94/00548 99/08/05 1050 199907778 94/00518 99/08/07/18 1635 199910264 94/00587 98/08/07/18 1635 199910269 94/00426 99/08/07 1500 199906593 94/00501 99/08/02 1500 199906593 94/00501 99/08/02 1500 199906593 94/00501 99/08/02 1520 199910944 94/00502 99/08/07 1700 1999065915 94/00502 99/08/07 1700 1999065915 94/00502 99/08/05 1700 1999065915 94/00502 99/08/05 1700 1999065915 94/00502 99/08/05 1700 1999065915 94/00505 99/08/05 1700 1999065915 94/00505 99/08/05 1700 1999065915 94/00505 99/08/05 1700 1999065915 94/00505 99/08/05 1700 1999065915 94/00505 99/08/05 1700 1999065915 94/00505 99/08/05 1700 199906996 94/00505 94/00505  | C-RUPM    | 99/06/23      | 0310 | 199904894 | 94/00427    | 99 9        | 74.30         | 0.0009 | 0.0006 | 8.86                | 0.5     |             | 00  | 0.19        |                                  |
| 99/09/09 1325 19990410 94/00618 20 110.00 0.0011 0.0005 7.39 99/09/15 1050 19990410 94/00618 20 110.00 0.0011 0.0005 7.39 99/09/15 1050 199904093 94/00426 140 45.70 0.0011 0.0005 7.40 99/09/25 0.050 19990493 94/00426 140 45.70 0.0011 0.0005 7.40 99/09/26 1705 19990593 94/00426 140 45.70 0.001 0.0007 16.70 99/09/26 150 1999099090 94/00643 70 49.90 0.0009 0.0009 0.860 99/09/26 1645 199910945 94/00403 250 54.80 0.0011 0.0007 0.962 99/09/25 1520 199908902 94/00602 60 55.10 0.0008 0.0009 11.90 99/09/25 1520 199908902 94/00602 60 55.10 0.0008 0.0009 11.90 99/09/25 1700 199908902 94/00482 200 55.10 0.0008 0.0009 11.90 99/09/25 1700 199908902 94/00482 200 55.10 0.0013 0.0013 0.001 30.50  | 99/09/09 1325 199901264 94/05618 20 110.00 0.0015 0.0005 7.39 99/09/15 1050 199901264 94/01587 20 110.00 0.0011 0.0005 7.39 99/09/15 1050 199901264 94/01587 20 79.10 0.0015 0.0005 7.40 99/09/15 1050 1999012969 94/00642 7.40 10.001 0.0005 7.40 99/09/15 1050 1999012969 94/00642 7.00 10.001 0.0007 10.0005 7.40 99/09/15 1050 1999019945 94/00643 7.00 10.001 0.0007 10.001 30.80 99/09/12 1520 199901994 94/00602 60 56.10 0.0008 0.0006 11.30 99/09/12 1520 199901994 94/00602 60 56.10 0.0001 0.0001 30.50 99/09/12 1700 199901994 94/00602 60 56.10 0.0001 0.0001 30.50 99/09/12 1700 199901994 94/00602 60 56.10 0.0001 0.0001 30.50 99/09/12 1700 199901994 94/00602 40 124.00 0.0001 0.0001 30.50 99/09/12 1700 199901994 94/00602 40 124.00 0.0001 0.0001 30.50 99/09/12 1700 199901994 94/00602 40 124.00 0.0001 0.0001 30.50  | 99/09/10   1950   19990/47   19990/48   19900/48   19990/48   1990 | 99/09/02 1939 1939 1770 94/00/42 99/09/77 1939 1939 1770 94/00/48 99/09/77 1939 10/26 1999 10/26 99/09/77 99/09/77 99/09/77 99/09/22 1939 10/26 1999 10/26 94/00/48 94/00/48 99/09/22 15/20 1999 10/29 94/00/48 94/00/48 99/09/22 15/20 1999 10/29 94/00/48 94/00/48 99/09/22 15/20 1999 10/29 94/00/48 94/00/48 99/09/22 15/20 1999 10/29 94/00/48 94/00/48 94/00/48 99/09/22 19/20 19/99/28 94/00/48 |           | 99/07/18      | 1645 | 199906594 | 94/00544    | 9 6         | 103.00        | 0.0008 | 2000   | 7 76                | 2 1     |             | 00  |             | 81.0                             |
| 99/09/15         1050         199910264         34/01547         20         79.10         0.0015         0.0005         5.62           99/06/73         1635         199912969         34/01587         20         79.10         0.0015         0.0005         5.62           99/06/73         1630         199904993         34/00426         140         45.70         0.001         0.0007         16.70           99/06/73         1630         19990593         34/00426         140         45.70         0.0001         0.0007         11.40           99/06/76         1705         19990593         34/00443         40         56.60         0.0009         0.0005         11.40           99/09/26         1645         199910945         34/00483         250         54.80         0.0011         0.0011         30.80           99/09/27         1520         199912970         94/01571         150         49.70         0.0014         0.0008         0.0001         30.50           99/09/27         1520         199910945         94/00602         60         56.10         0.0014         0.0006         11.90           99/09/27         1520         199910944         94/00482         200         55.10<  | 99/09/15         1050         199910264         34/01547         20         79.10         0.0015         0.0005         5.62           99/10/18         1636         199910264         34/01587         20         79.10         0.0015         0.0005         5.62           99/10/18         1636         199904893         94/00426         140         45.70         0.0011         0.0007         7.40           99/04/16         1705         199904893         94/00437         70         49.80         0.0009         0.0007         11.40           99/04/16         1705         199908907         94/01479         40         56.60         0.0009         0.0007         11.40           99/09/16         199910945         94/00401         40         57.10         0.0007         0.0011         30.80           99/09/17         150         199910945         94/00403         250         56.10         0.0014         0.0004         23.20           99/09/17         1700         199910944         94/00602         60         56.10         0.0013         0.001         30.50           124.00         1700         1700         199908815         94/00602         40         55.10         0.0013  | 99/09/15 1050 199910264 94/01547 20 79.10 00015 00005 5.62 99/10/18 1635 199910264 94/01587 30 51.40 00011 0.0005 7.40 99/07/18 1636 19990493 94/00426 140 45.70 0.0011 0.0007 16.70 99/07/18 1630 199906593 94/00543 70 49.80 0.0009 0.0005 11.40 99/07/18 1630 199906933 94/00543 70 49.80 0.0009 0.0005 11.40 99/09/12 1500 199908901 94/00501 40 55.10 0.0001 0.0011 30.80 99/09/12 1520 199908902 94/00502 60 55.10 0.0018 0.0005 11.90 99/09/12 1500 19990891 94/00502 60 55.10 0.0013 0.001 30.50 99/09/12 1700 199908915 94/00502 40 113.00 0.0011 0.0001 30.50 99/09/13 830 19990492 94/00552 40 113.00 0.0011 0.0008 9.96  | 99/06/72 1050 199910264 94/01367<br>98/06/72 0850 199904893 94/00426<br>99/07/16 1635 199905593 94/00426<br>99/08/72 1500 199906901 94/0043<br>99/08/72 1500 199908901 94/0043<br>99/08/72 1520 199910944 94/00482<br>99/08/72 1700 199904892 94/00482<br>99/08/72 1700 199904892 94/00425<br>99/08/71 1700 199906891 94/00425<br>99/08/72 1445 199906892 94/00554<br>99/08/72 1445 199906895 94/00554<br>99/08/72 1445 199906895 94/00556   |           | 99/08/30      | 1325 | 199909410 | 94/00618    | 88          | 110.00        | 0.0011 | 0.0005 | 7.39                | <10     |             | 0   |             | 90.0                             |
| 99/10/18 1635 199912969 94/01587 30 51.40 0.0011 0.0005 7.40 99/06/23 0850 199904933 94/00426 140 45.70 0.001 0.0007 16.70 99/06/22 15.00 199906593 94/00426 140 46.70 0.0008 0.0005 11.40 99/09/26 15.00 199906907 94/00543 70 49.90 0.0008 0.0005 11.40 99/09/26 15.00 199908907 94/00643 250 54.80 0.0011 0.0007 0 9.62 99/09/26 1645 199910945 94/00463 250 54.80 0.0011 0.0007 0 9.62 99/09/22 1520 199908902 94/00602 60 56.10 0.0008 0.0006 11.90 99/09/26 1700 199908902 94/00602 200 55.10 0.0013 0.0013 0.001 30.50  | 99/10/18 1635 199912969 94/01587 30 51.40 0.0011 0.0005 7.40 99/06/23 0.650 199904893 94/00426 140 45.70 0.0011 0.0005 7.40 99/06/22 1500 199906593 94/00543 70 49.90 0.0008 0.0005 11.40 99/08/22 1500 199908905 94/00643 250 57.10 0.0007 0.962 0.860 99/09/26 1645 199910945 94/00601 40 57.10 0.0007 0.962 0.860 99/09/22 1520 199908902 94/00602 60 55.10 0.0014 0.0008 23.20 99/09/26 1700 199908902 94/00602 60 56.10 0.0008 0.0006 11.90 99/09/26 1700 199908915 94/00602 60 56.10 0.0008 0.0005 11.90 99/09/26 1700 199908915 94/00602 40 124.00 0.0013 0.0013 0.001 30.50  | 99/0/18 1635 199912969 94/01587 30 51.40 0.0011 0.0005 7.40 99/0/128 1635 199904893 94/00426 140 45.70 0.0011 0.0005 7.40 99/0/128 1630 1999004893 94/00426 140 46.70 0.0001 0.0007 16.70 99/0/128 1630 199900539 94/00543 770 49.80 0.0008 0.0005 11.40 99/0/128 1645 199912970 94/00501 40 56.60 0.0009 0.860 96/0/128 1645 199912970 94/00601 40 57.10 0.0007 0.0011 30.80 99/09/12 1520 199908902 94/00602 60 56.10 0.0008 0.0001 30.80 99/09/12 1700 199910944 94/00482 200 55.10 0.0013 0.0013 0.001 30.50 99/09/12 1700 199904892 94/00602 40 113.00 0.0011 0.0008 9.96 99/07/18 1620 199906892 94/00554 40 113.00 0.0011 0.0008 9.96   | 99/10/18 1635 199912969 94/01587<br>98/06/73 0050 199904893 94/00426<br>99/06/718 1630 199906593 94/00543<br>99/06/72 1500 199906901 94/00543<br>99/06/72 1520 199910945 94/00483<br>99/06/72 1520 199908902 94/00502<br>99/06/72 1700 199906815 94/00502<br>99/06/72 1700 199906815 94/00502<br>99/06/72 1445 199906592 94/00554<br>99/06/72 1445 199906990 94/00554<br>99/06/72 1445 199906990 94/00556  |           | 99/09/15      | 1050 | 199910264 | 94/01547    | 8           | 79.10         | 0.0015 | 0.0005 | 5.62                | <10     |             | 0   |             | 0.12                             |
| 99/07/18         1630         199904893         94/00426         140         45.70         0.001         0.0007         16.70           99/07/18         1630         199906593         94/00543         70         49.90         0.0008         0.0005         11.40           99/02/22         150         199908801         94/00543         70         40.90         0.0009         0         8.60           99/03/22         150         19991397         94/00501         40         57.10         0.0007         0         9.65           99/03/24         19991297         94/04043         250         54.80         0.0001         0.0011         30.80           99/03/25         1520         199908902         94/05/71         150         49.70         0.0014         0.0004         23.20           99/09/25         1520         199908902         94/00602         60         56.10         0.0008         0.0001         30.50           99/09/26         1700         199910944         94/00462         200         55.10         0.0013         0.001         30.50   | 99/06/12         0850         199904893         94/00426         140         45.70         0.001         0.0007         16.70           99/07/18         1630         199906593         94/00543         70         49.80         0.0009         0.0005         11.40           99/07/18         1630         199906593         94/00543         70         49.80         0.0009         0.0005         11.40           99/08/12         1500         199908901         94/00501         40         56.60         0.0009         0         8.60           99/08/12         15991845         94/00493         250         54.80         0.0011         0.0011         30.80           99/08/12         15991845         94/00462         60         56.10         0.0014         0.0001         30.80           99/08/12         1700         19991844         94/00462         60         56.10         0.0013         0.001         30.50           2         99/07/17         1700         199908815         94/00502         40         124.00         0.0013         0.001         30.50   | 99/07/18 1630 199904893 94/00426 140 45.70 0.001 0.0007 16.70 99/07/18 1630 199906593 94/00543 70 49.60 0.0008 0.0005 11.40 99/07/18 1630 199906593 94/00543 70 49.60 0.0008 0.0005 11.40 99/08/12 1500 199908901 94/00601 40 57.10 0.0009 0.0005 11.40 99/08/12 1500 199910945 94/00483 250 54.80 0.0011 0.0011 30.80 99/08/12 1520 199908902 94/00482 260 56.10 0.0016 0.0005 11.90 99/08/12 1700 199910944 94/00602 60 56.10 0.0018 0.0013 0.001 30.50 99/07/07 1700 199908915 94/00482 200 55.10 0.0019 0.0013 0.001 30.50 99/06/13 830 199904892 94/00455 40 113.00 0.0011 0.0008 9.96 99/07/18 1620 199906892 94/00554 40 121.00 0.0011 0.0008 9.96  | 99/06/23 00950 199904893 94/00426 994/00426 994/07/18 1630 199906593 94/00426 994/00426 1705 199906593 94/00573 94/00573 994/02/83 994/07/8 1645 199910945 94/00483 994/02/82 1520 199908902 94/00482 994/02/70 1700 199904892 94/00502 994/02/2 994/07/18 1620 199906592 94/00554 994/03/8 1620 199908900 94/00554 994/03/80 994/03/8 1445 199908900 94/00564 94/00564 994/03/8 1620 199908900 94/00564 94/00564 94/00569   |           | 99/10/18      | 1635 | 199912969 | 94/01587    | 90          | 51.40         | 0.0011 | 0.0005 | 7.40                | 10      |             | 0   |             | 0.14                             |
| 99/07/18 1630 199906593 94/00543 70 49.80 0.0008 0.0005 11.40 99/08/02 1705 19990777 94/01379 40 56.60 0.0009 0.0005 11.40 99/08/02 1500 1999089077 94/00463 250 54.80 0.0011 0.0011 30.80 99/08/12 1520 199918970 94/00483 250 54.80 0.0011 0.0011 30.80 99/08/12 1520 199908902 94/00602 60 56.10 0.0008 0.0005 11.90 99/08/12 1520 199908902 94/00482 20 55.10 0.0013 0.0013 30.50  | 99/07/18 1630 1999005693 94/00643 70 49.80 0,0008 0,0005 11.40 98/08/06/07 11.40 99/08/06/07/77 94/00643 70 56.60 0,0009 0,0005 11.40 98/08/06/07 15.00 1999019945 94/09643 250 54.80 0,0011 0,0011 30.80 99/09/22 1520 199910945 94/09602 60 55.10 0,0014 0,0000 23.20 99/09/22 1520 199901994 94/09602 60 55.10 0,0018 0,0013 0,001 30.50 99/09/26 1700 199901994 94/09602 200 55.10 0,0013 0,001 30.50 11.90 99/09/26 1700 199901895 94/00602 40 124.00 0,0036 0,0005 11.90 30.50   | 99/07/18 1630 199906593 94/00643 70 49.60 0,0008 0,0005 1140 99/08/02 1500 199906593 94/00643 70 49.60 0,0008 0,0005 1140 99/08/02 1500 199901994 94/00683 250 54.80 0,0011 0,0011 30.80 99/08/02 1520 199901994 94/00602 60 56.10 0,0008 0,0005 11.30 99/08/02 1520 199901994 94/00602 60 56.10 0,0008 0,0001 30.50 99/08/02 1700 199901994 94/00602 40 124.00 0,0011 0,0008 996 99/08/02 150 199904992 94/0062 40 113.00 0,0011 0,0008 996 99/08/03 830 199904992 94/00654 40 121.00 0,0011 0,0008 996   | 99/07/18 1630 199906593 94/00543<br>99/08/02 1500 199907777 94/01379<br>99/08/02 1500 199908901 94/00401<br>99/08/02 1520 199908902 94/00602<br>99/08/02 1520 199908902 94/00602<br>99/08/02 1700 199906815 94/00402<br>99/08/02 1700 199906815 94/00402<br>99/08/02 1730 199906591 94/00502<br>99/08/02 1445 199908900 94/00504<br>99/08/02 1445 199908900 94/00504   | C-MOH1    | 99/06/23      | 0880 | 199904893 | 94/00426    | 140         | 45.70         | 0.001  | 0.0007 | 16.70               | 10      |             | 0   | 0 0.52      |                                  |
| 99A0BAZE         1705         199907777         94/01379         40         56.60         0.00009         0         88.90           99A0BAZE         1500         1999080777         94/00501         40         56.60         0.0007         0         962           99A0BAZE         1645         199912970         94/01571         150         49.70         0.0014         0.0001         30.80           99A0BAZ         1520         199918902         94/00602         60         56.10         0.0004         0.0005         11.90           99A0BAZ         1520         19991894         94/00482         20         56.10         0.0003         0.0005         11.90  | 99/09/26 1500 19990990777 94/01379 40 56.60 0.0009 0 8.60 99/09/27 1500 199909901 94/00601 40 57.10 0.0009 0 9.62 99/09/26 1645 199919945 94/00482 250 54.80 0.0011 0.0011 30.80 99/09/22 1520 199909902 94/00602 60 56.10 0.0014 0.0008 23.20 99/09/26 1700 199909902 94/00602 200 56.10 0.0013 0.0013 0.001 30.50 99/09/26 1700 199905815 94/00602 40 124.00 0.0036 0.0007 4.23  | 99A09A25 1500 19990930777 94401379 40 56.60 0.0009 0 85.00 990B425 1500 199909301 94401379 40 56.60 0.0009 0 85.00 990B425 1500 199909301 94400601 40 57.10 0.0007 0 9.62 9940B425 1550 199901945 94400602 60 56.10 0.0008 0.0005 11.90 9940B422 1520 199908902 94400602 60 56.10 0.0008 0.0005 11.90 9940B425 1700 199901944 94400462 200 55.10 0.0013 0.0013 0.001 30.50 9940B42 830 199904892 94400425 40 113.00 0.0011 0.0008 9.96 9940B42 94400425 40 113.00 0.0011 0.0008 9.96   | 99/08/12 1500 1999003777 94/01379 94/01379 94/01379 94/02601 99/08/12 1500 199900901 94/00601 99/08/12 1645 199910945 94/00601 99/08/12 1520 199900902 94/00602 99/08/12 1700 1999005815 94/00602 99/08/12 830 1999005815 94/00602 99/08/11 1700 199900591 94/00602 99/08/11 1700 199900591 94/00602 99/08/11 1700 199900591 94/00602 99/08/11 1700 199900591 94/00504 99/08/11 1700 199900590 94/00606 99/08/11 1700 199900590 94/00654 94/01300 99/08/11 1700 199900990 94/00654 94/01506 94/00609   |           | 99/07/18      | 1830 | 199906593 | 94/00543    | 70          | 49.80         | 0.0008 | 0.0005 | 11.40               | R       |             | 0 0 |             | 44.0                             |
| 99/09/26 1645 199910945 94/00463 250 57.10 0.0001 0.001 30.80 99/09/26 1700 199910944 94/00462 200 55.10 0.0013 0.001 30.80 99/09/26 1700 199910944 94/00462 200 55.10 0.0013 0.001 30.50  | 99/09/26 1500 19990990 945 94/00483 250 54.80 0.001 0.001 30.80 99/09/26 1520 199919945 94/00483 250 54.80 0.001 0.001 30.80 99/09/22 1520 199919945 94/00602 60 56.10 0.0008 0.0006 23.20 99/09/26 1700 199910944 94/00482 200 55.10 0.0013 0.001 30.50 2 99/07/07 1700 199905815 94/00502 40 124.00 0.0036 0.0007 4.23   | 99/09/22 1500 199908901 94/00403 40 57.10 0.0001 0.001 0.001 9.02 99/09/26 1645 199910945 94/00483 250 54.80 0.0014 0.0001 0.001 30.80 99/10/18 1645 199910945 94/00483 250 55.10 0.0014 0.0008 23.20 99/09/22 1520 199908902 94/00462 200 55.10 0.0013 0.001 30.50 11.90 99/09/26 1700 199906815 94/00502 40 124.00 0.0011 0.0008 9.96 99/09/23 830 199904892 94/00425 40 121.00 0.0011 0.0008 9.96 99/05/21 99/05/24 94/00554 40 121.00 0.0011 0.0008 9.96   | 99,09/22 1500 1999,0991 9400,001<br>99,09/26 1645 199910945 94,000,013<br>99,09/22 1520 1999,0992 94,000,602<br>99,09/26 1700 1999,06815 94,000,602<br>99,09/23 830 1999,06815 94,000,425<br>99,09/23 830 1999,06892 94,000,50<br>99,09/26 1730 1999,0990 94,000,50<br>99,09/08/26 1730 1999,0990 94,000,50<br>99,09/25 1445 1999,0990   |           | 99/08/06      | 1705 | 199907777 | 94/01379    | 9           | 56.60         | 0.0009 | 00     | 8.60                | 1 8     |             | 0 0 |             | 20.00                            |
| 99/10/18 1645 199912970 94/10/677 150 49.70 0.0014 0.0008 23.20 99/10/17 150 199908902 94/10/602 60 56.10 0.0008 0.0005 11.90 99/10/17 1700 199910944 94/10/462 200 55.10 0.0013 0.001 30.50   | 99/09/20 1520 199908902 94/00602 60 56.10 0.0014 0.0006 23.20 99/09/20 1700 199906815 94/06602 40 124.00 0.0036 0.0007 4.23  | 99/10/18 1645 199912970 94/10/27 150 49.70 0.0014 0.0008 23.20 99/10/18 1645 199912970 94/10/27 150 56.10 0.0008 0.0005 11.90 99/10/22 1520 199908902 94/10/42 200 56.10 0.0013 0.001 30.50 11.90 99/10/27 1700 199908915 94/10/20 40 124.00 0.0011 0.0008 9.96 99/10/27 1620 19990892 94/10/25 40 121.00 0.0011 0.0008 9.96 99/17/18 1620 19990892 94/10/254 40 121.00 0.0011 0.0008 9.96   | 99/09/22 1520 1999/0942 94/00602 99/09/22 1520 1999/08/22 99/07/07 1700 1999/05/81 94/00602 99/05/23 830 1999/05/81 94/00602 99/05/18 1620 1999/05/82 94/00654 99/09/25 99/09/23 1445 1999/08/20 94/00600 99/09/25 1445 1999/08/26 94/00600 99/09/27 1445 1999/08/26 94/01/30 94/01/30 94/01/30  |           | 99/08/22      | 1500 | 199908901 | 94/00601    | 3 32        | 54 80         | 0000   | 0000   | 30.80               | 8 8     |             | 0   |             | 0.58                             |
| 99/08/72 1520 199908902 94/00602 60 56.10 0.0008 0.0005 11.90 99/08/26 1700 199910944 94/00462 200 55.10 0.0013 0.001 30.50  | 99x08/72         1520         199908902         94/00602         60         56.10         0.0008         0.0005         11.90           2         98x09/707         1700         199905815         94x00602         40         124.00         0.0036         0.0007         4.23   | 99/08/22 1520 199908902 94/00602 60 56.10 0.0008 0.0005 11.90<br>99/08/26 1700 199910944 94/00462 200 55.10 0.0013 0.001 30.50<br>2 99/07/07 1700 199904892 94/00425 40 113.00 0.0011 0.0008 9.96<br>99/06/23 830 199904892 94/00425 40 121.00 0.0011 0.0008 9.96  | 99/08/22 1520 199908902 94/00602<br>99/08/26 1700 199905815 94/00452<br>99/06/23 830 1999065815 94/00425<br>99/08/26 1730 199906592 94/00455<br>99/08/06 1730 199906592 94/00455<br>99/08/06 1730 199908900 94/00504<br>99/08/06 1730 199908900 94/00500   |           | 99/09/26      | 1645 | 199912970 | 94/01571    | 350         | 49.70         | 0.0014 | 0.0008 | 23.20               | 361     |             | 0   |             | 0.54                             |
| 99/09/26 1700 1999/10944 94/00482 200 55.10 0.0013 0.001 30.50   | 99/09/26 1700 199910944 94/00462 200 55.10 0.0013 0.001 30.50 99/07/07 1700 199905815 94/00502 40 124.00 0.0036 0.0007 4.23  | 99/09/26         1700         199905815         94/00462         200         55.10         0.0013         0.001         30.50           2         99/07/07         1700         199905815         94/00602         40         124.00         0.0036         0.0007         4.23           99/06/23         830         199904892         94/00425         40         113.00         0.0011         0.0008         9.96           99/07/18         1620         199906892         94/00554         40         121.00         0.001         0.0007         9.27  | 99/09/26 1700 199910944 94/00482<br>2 99/07/07 1700 199906815 94/00425<br>99/07/18 1620 199906592 94/00425<br>99/08/12 1620 199906592 94/00425<br>99/08/12 1445 199908900 94/00500<br>90/08/12 1445 199908900 94/00500   | C-MOH2    | 99/08/22      | 1520 | 199908902 | 94/00602    | 09          | 56.10         | 0.0008 | 0.0005 | 11.90               | 10      |             | 0   | 0 0.37      |                                  |
|  | 99/07/07 1700 199905815 94/00502 40 124.00 0.0036 0.0007 4.23  | 2 99/07/07 1700 199905815 94/00502 40 124,00 0.0036 0.0007 4.23<br>99/06/23 830 199904892 94/00425 40 113.00 0.0011 0.0008 9.96<br>994/06/23 830 199905892 94/00554 40 121.00 0.001 0.0007 9.27  | 2 99/07/07 1700 199905815 94/00502<br>98/06/23 830 199904892 94/00425<br>99/07/18 1620 199906592 94/0054<br>99/08/25 1445 19990890 94/01380<br>99/08/25 1445 19990890 94/01380   | C-MOH3    | 99/09/26      | 1700 | 199910944 | 94/00482    | 300         | 55.10         | 0.0013 | 0.001  | 30.50               | 120     |             | 0   | 0 0.58      |                                  |
| 996 9000 11300 0.11300 0.001 0.0008 9.96   | THE PARTY OF THE P   |  | 1730 199907778 94/01380<br>1445 199908900 94/00600<br>1010 19990896 94/01526   | C-RMID    | 99/07/18      | 1620 | 199906592 | 94/00554    | 3           | 121.00        | 0.001  | 0.0007 | 9.27                | 10      |             |     | 0.18        |                                  |
| 99/06/23 830 199904892 94/00425 40 113.00 0.0011 0.0008 9.96 99/07/18 1620 199906592 94/00554 40 121.00 0.001 0.0007 9.27 99/08/06 1730 199907778 94/01380 30 118.00 0.0008 0.0006 7.94  | 94/05/06 1730 199907778 94/01380 30 118 00 0,0008 0,0006 7,94 99/08/06 1730 199907778 94/01380 30 118 00 0,0008 0,0006 7,94  | THE PARTY OF THE P | 000000000000000000000000000000000000000  |           | 99/08/22      | 1445 | 199908900 | 94/00600    | 38          | 132.00        | 0      | 0.000  | 7.67                | 310     |             | 0   |             | 60.0                             |
| 99/06/23 830 199904892 94/00425 40 113.00 0.0011 0.0008 9.96 99/07/18 1620 199906592 94/00554 40 121.00 0.001 0.0007 9.27 93/08/06 1730 1730 94/00500 94/00500 30 118.00 0.0008 0.0006 7.94 99/08/07 1445 19990800 94/00500 24/00500 70 173.90 0.0006 0.0005 6.96 99/00/07 173.90 0.0006 0.0005 6.96 99/00/07 173.90 0.0006 0.0005 7.67 40 173.00 0.0006 0.0006 0.0005 7.67 40 173.00 0.0006 0.0006 0.0005 7.67 40 173.00 0.0006 0.0005 0.000 | 98/07/18 1620 199906592 94/06554 40 121.00 0.001 0.0007 9.27 9.27 99/08/06 1730 199907778 94/01380 30 118.00 0.0008 0.0006 7.94 99/08/06 1730 19990800 94/00000 20 7.3390 0.0006 0.0006 6.68 95/09/09/09/09/09/09/09/09/09/09/09/09/09/  | 1445 199908900 94/00800 20 73.90 0,000 0,000 0.00 0.00 0.00 0.00 0.00  | 1558 199912968 94/01572  |           | 99/10/18      | 1558 | 199912968 | 94/01572    | 9           | 70.70         | 0.0015 | 0.0008 | 9.26                | 98      |             | 0   |             | 0.24                             |

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Fleid and Laboratory Data. Values shown as zero (0) reflect no detectble value at the limit of quantification (see lest methods at end of table)

| Time   DOE Lab #   DOE Field # as   US/cm   ug/l as   ug/l as   ug/l as   mg/l as      | 1545     | 99/07/07<br>99/10/18 | 99/10/    | 0,00      | 8 8       | 88        | 85        | 00 00                | 0 0       | 0.0       |                                     | 0, 0, 0, 0,                                 | 0, 0,                  | 0) 0)     | 01 01     |
|--|----------|----------------------|-----------|-----------|-----------|-----------|-----------|----------------------|-----------|-----------|-------------------------------------|---|------------------------|-----------|-----------|
| DOE Lab # DOE Field # as uS/cm ug/l as ug/l as mg/l as as mg/l as mg   |          |                      | (D)       | 99/06/23  | 90/90/96  | 99/09/08  | 99/10/18  | 99/08/22<br>99/10/19 | 99/10/19  | 99/10/19  | 99/06/23<br>99/06/27<br>96/09/27    | 99/06/23<br>99/10/19<br>99/10/19            | 99/09/15               | 99/10/19  | 99/10/19  |
| Color Cond CR CU TOC E.coli F FI  DOE Field # as uS/cm ug/l as ug/l as mg/l as as mg/l as mg/  | 20       | 1535                 | 1535      | 0805      | 1850      | 0920      | 1330      | 1355                 | 1340      | 1330      | 1115<br>1625<br>1920                | 1415<br>1420<br>1420<br>1420                | 1140                   | 1410      | 1415      |
| Color Cand CR CU TOC E.coli F Fit as ugilas mg/l as as mg/las mg/l as  | 99912972 | 199905816            | 199912967 | 199904891 | 199907779 | 199908899 | 199912965 | 199908894            | 199913055 | 199913057 | 198904897<br>198908904<br>198911154 | 199908981<br>199813052<br>199913059         | 199910262<br>199913056 | 199913053 | 199913054 |
| Cond CR CU TOC E coli F FI USicm ugil as ugil as mg/l as as mg/l as mg | 94/01581 | 94/00605             | 94/00677  | 94/00424  | 94/01381  | 94/00599  | 94/01579  | 94/01588             | 94/01586  | 94/01585  | 94/00430<br>94/00604<br>94/01562    | 94/00675<br>94/0178<br>94/01580<br>94/01580 | 94/00479               | 94/01583  | 94/01584  |
| CR CU TOC E coli F FI Ughlas ughlas mg/l as as mg/las mg/l Cr Cu C C CFU/100ml F F F   | 98       | 90                   | 901       | 8 9       | 8 8       | 8 8       | 150       | 8                    |           |           | S 8 5                               | 8 0   | 8                      |           |           |
| CU TOC E. coli F F F CU CL C CFU/100ml F F F F F F F F F F F F F F F F F F F   | 166.00   | 152.00               | 152.00    | 85.50     | 118.00    | 90.80     | 114.00    | 77.10                |           |           | 50.00<br>53.30<br>64.30             | 1120.00                                     | 299.00                 |           |           |
| TOC E coli F Fi  | 0.0033   | 0.0033               | 0.0033    | 0.0009    | 0.00      | 0.0008    | 0.0017    | 0.0007               |           |           | 0.0000                              | 0.0055                                      | 0.0064                 |           |           |
| ss mgf ss mg/ ss | 0.015    | 0.0036               | 0.0036    | 0.0008    | 0.0008    | 0.0006    | 0.0019    | 0                    |           |           | 0.0008                              | 0.0011                                      | 0.0026                 |           |           |
| a months and a months a months and a months a mo | 13.30    | 14.40                | 14.40     | 8.66      | 6.18      | 6.40      | 13.20     | 20.0                 |           |           | 14.60<br>13.30<br>28.60             | 12.20                                       | 6.89                   |           |           |
| F 90 F   | >24190   | 190                  | 1440      | 240       | R 1 5     | S 5       | 700       | 88                   | 190       | 8         | 8 8 8                               | >2000<br>>2000<br>170                       | 35 06                  | 3 3       | 140       |
| E SE   | 0        | 0                    | 0         | 0         | 0         | 00        | 0         | 0                    |           |           | 000                                 | 0.103                                       | 0.174                  |           |           |
| g   !  | 0.77     | 0.91                 | 0.91      | 0.31      | 0.25      | 0.20      | 0.57      | 0.09                 |           |           | 0.14                                | 1.25  | 8.                     |           |           |
| HARD<br>mg/l as<br>CaCO3   | 43.7     | 42.2                 | 42.2      | 18.6      | 28.0      | 24.2      | 23.3      | 22.9                 |           |           | 11.2                                | 93.9  | 80.8                   |           |           |
| × 20 ×   | 2.210    | 1.620                | 1.620     | 0.387     | 0.741     | 0.583     | 0.803     | 0.319                |           |           | 0.214                               | 5.040<br>8.870                              | 19.700                 |           |           |

APPENDIX 5s (cont.). 1999 St. Croix Stream Study Field and Laboratory Data.
Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| Station #                  | SC-MEAD1               | SC-MEAD4  | SC-HAT2   | SC-BENS1  | SC-PARK1  | SC-GALL1  |           |                        | SC-COTT2  | SC-WAW1   |           |           |           | SC-WAW3   |                        | SC-POUT2  |           | sc-Gold1  | SC GOLDS  | SC-GRLAW  |
|----------------------------|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|------------------------|-----------|-----------|-----------|-----------|-----------|
| Date                       | 99/08/23<br>96/10/18   | 99/08/23  | 99/08/23  | 99/06/29  | 98/10/18  | 99/06/23  | 99/08/22  | 99/09/07               | 70/10/66  | 99/06/23  | 99/07/18  | 99/08/22  | 99/09/07  | 99/06/23  | 99/08/22               | 99/06/23  | 99/08/22  | 99,07/07  | 70/20/06  | 62/80/66  |
| Time                       | 1750                   | 1430      | 1445      | 0725      | 750       | 0736      | 1930      | 1940                   | 1900      | 0625      | 1500      | 1350      | 1830      | 0710      | 1330                   | 9990      | 1325      | 1945      | 1915      | 1920      |
| DOE Lab                    | 199908983<br>199912966 | 199908982 | 199908984 | 199905189 | 198912829 | 199904890 | 199907780 | 199903894<br>199912964 | 199905818 | 199904887 | 199906589 | 199908895 | 199909893 | 199904888 | 199908896<br>199912962 | 199904889 | 199908897 | 199905820 | 199805819 | 199909314 |
| DOE Field #                | 94/00678               | 94/00679  | 94/00681  | 94/00501  | 94/01573  | 99/00423  | 94/01382  | 94/01524               | 94/00507  | 94/00420  | 94/00511  | 94/00595  | 94/01523  | 94/00421  | 94/01576               | 94/00422  | 94/00597  | 94/00509  | 94/00508  | 99/00672  |
| Calar<br>as<br>color units | 8 4                    | 8         | 10        | 88        | 15        | 88        | 82        | 88                     | 150       | 8         | 88        | 28        | 22        | 9         | 8 9                    | 5         | 88        | 85        | 8         | 8         |
| Cand<br>uS/cm              | 231.00                 | 259.00    | 288.00    | 272.00    | 491.00    | 45.30     | 39.10     | 96.10                  | 143.00    | 66.80     | 73.00     | 64.60     | 79.60     | 90.90     | 57.50                  | 52.90     | 53.30     | 53.80     | 40.20     | 83.40     |
| 00 CR                      | 0.0046                 | 0.0048    | 0.0044    | 0.0034    | 0.0041    | 0.0006    | 0.0005    | 0.0013                 | 0.0037    | 0.0009    | 0.0007    | 0.0006    | 0.0016    | 0.0011    | 0.0006                 | 0.0009    | 0.0009    | 0.0005    | 90000     | 0.0012    |
| 2 2                        | 0.0006                 | 0.0006    | 0         | 0.0014    | 0.002     | 0.0007    | 0.0000    | 0.0009                 | 0.0009    | 0.0006    | 0.0006    | 0         | 0.0005    | 0.0005    | 0.0006                 | 90000     | 0.007     | 0.0007    | 0         | 0.0005    |
| mg/l as                    | 7.27                   | 2.51      | 2.05      | 8.12      | 7.56      | 6.08      | 1.28      | 5.66<br>9.85           | 11.10     | 6.78      | 7.06      | 7.44      | 9.92      | 10.20     | 9.00                   | 5.56      | 13.60     | 5.83      | 96.9      | 13.00     |
| E. coli<br>as<br>CFU/100ml | 88                     | 40        | <10       | 700       | 190       | 200       | 88        | 90 00                  | 160       | 99        | 8 :       | 8         | 360       | 160       | 310                    | . 8       | 320       | 88        | 10        | <10       |
| mg/l as                    | 00                     | 0         | 0         | 00        | 0         | 00        | 00        | 00                     | 0         | 0         | 00        | 0         | 00        | 0         | 00                     | 0         | 00        | 00        | 0         | o         |
| mg/l as                    | 0.38                   | 0.38      | 0.10      | 0.74      | 0.41      | 0.33      | 0.39      | 0.42                   | 2.17      | 0.19      | 0.10      | 0.15      | 0.10      | 0.42      | 0.17                   | 0.29      | 0.30      | 0.37      | 0.18      | 0.43      |
| mg/l as<br>CaCO3           | 72.0                   | 95.9      | 101.8     | 33.1      | 72.3      | 14.1      | 14.9      | 24.2                   | 38.4      | 19.2      | 18.6      | 18.3      | 17.0      | 16.9      | 15.7                   | 15.2      | 4 4 4     | 19.7      | 11.0      | 32.2      |
| x Age x                    | 0.973                  | 0.899     | 0.943     | 0.810     | 1.850     | 0.373     | 0.314     | 0.830                  | 0.860     | 0.480     | 0.00      | 0.47      | 0.711     | 0.485     | 0.536                  | 0.3       | 0.756     | 0.263     | 0.164     | 0 549     |

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

| 430     | 0725                            | 1355  |   | 99/08/24 0725  | 1910  |   |   | ESTUARY DATA   | SC-EWAW1 99/09/22 1225   | SC-EWAW2 98/09/22 1211   | SC-EWAW3 88/09/22 1155  | SC-EWAW4 99/09/22 1055   | 99/09/22 1231   | 99/09/22 1242  | 99,09,72 1254  | 99/09/22 1305   | 99/10/27 1030 199  | 98/09/22 1315  |
|---------|---------------------------------|---|---|--|---|---|---|--|--|--|---|--|---|--|--|---|--|--|
|         |                                 |   |   |  |   |   |   |  | 1225   | 1211   | 1155  | 1055   | 1231  | 1242   | 1254   | 1305  | · ·  |  |
| 96      | 1996                            | 198   | 196   | ğ  | 1900  |   |   |  |  |  |   |  |   |  |  |   | 96   | 986  |
| 9991999 | 08992                           | 910941  | 199612827   | 2010042  | 199912828   |   |   |  |  |  |   |  |   |  |  |   | 7161966  | 90967976   |
| 9400600 | 94/00614                        | 94/00700  | 94/01565  | CAMOARI  | 94/01566  |   |   |  | 94/00694   | 94/00693   | 94/00692  | 94/00691   | 94/00695  | 94/00696   | 94/00697   | 94/00698  | 94/01590   | 94/00699   |
| ş §     | 88                              | .09   | 10  | č  | 20  |   |   |  |  |  |   |  |   |  |  |   |  |  |
| 2000    | 189.00                          | 339.00  | 171.00  | 1340 00  | 562.00  |   |   |  |  |  |   |  |   |  |  |   |  |  |
| 0.0017  | 0.0039                          | 0.0055  | 0.0041  | 0.0048   | 0.012   |   |   |  |  |  |   |  |   |  |  |   |  |  |
| 0 0005  | 0.0016                          | 0.0029  | 0.0014  | 0.0036   | 0.0011  |   |   |  |  |  |   |  |   |  |  |   |  |  |
| 234     | 4.13                            | 7.83  | 4.04  | 6.52   | 4.22  |   |   |  |  |  |   |  |   |  |  |   |  |  |
| 340     | 8                               | 120   | 8   | >2000  | 180   |   |   |  | <10  | 8  | 120   | 150  | 160   | 430  | 1440   | 1440  | 230  | 350  |
| 0       | 0                               | 0   | 0   | 0  | 0   |   |   |  |  |  |   |  |   |  |  |   |  |  |
| 4.0     | 0.31                            | 1.03  | 0.33  | 0.16   | 0   |   |   |  |  |  |   |  |   |  |  |   |  |  |
| 30.8    | 0.89                            | 111.5   | 989   | 229.0  | 189.5   |   |   |  |  |  |   |  |   |  |  |   |  |  |
| 0 602   | 1.570                           | 4.260   | 1.600   | 9.700  | 1.780   |   |   |  |  |  |   |  |   |  |  |   |  |  |
|         | 00017 00025 234 340 0 0.44 30.8 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 1.20 0 1.03 111.5 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 1.03 111.5<br>0.0041 0.0014 4.04 100 0 0.33 58.6 | 0.0017 0.0025 2.34 3.40 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 1.03 111.5<br>0.0041 0.0014 4.04 100 0 0.33 58.6 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 1.03 111.5<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0048 0.0036 6.52 >2000 0 0.16 229.0 | 0.0037 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0048 0.0036 6.52 >2000 0 0.16 229.0<br>0.012 0.0011 4.22 180 0 0 189.5 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 1.03 111.5<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0048 0.0036 6.52 >2000 0 0.16 229.0<br>0.012 0.0011 4.22 180 0 0 189.5 | 0.0037 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0048 0.0036 6.52 >2000 0 0.16 229.0<br>0.012 0.0011 4.22 180 0 0.16 229.0 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 1.03 111.5<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0048 0.0036 6.52 >2000 0 0.16 229.0<br>0.012 0.0011 4.22 180 0 0 189.5 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 1.03 111.5<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0048 0.0036 6.52 >2000 0 0.16 229.0<br>0.012 0.0011 4.22 180 0 0.16 229.0 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 1.03 111.5<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0048 0.0036 6.52 >2000 0 0.16 229.0<br>0.012 0.0011 4.22 180 0 0 189.5 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 0.33 111.5<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0048 0.0036 6.52 >2000 0 0 0.16 229.0<br>0.012 0.0011 4.22 180 0 0 189.5<br>120 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 1.03 111.5<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0048 0.0036 6.52 >2000 0 0.16 229.0<br>0.012 0.0011 4.22 180 0 0 189.5<br>120 50 150 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 0.33 58.6<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0042 0.0014 4.22 180 0 0.16 229.0<br>0.012 0.0011 4.22 180 0 0.16 229.0<br>120 150 150 150 150 150 150 150 150 150 15 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 1.03 111.5<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0048 0.0036 6.52 >2000 0 0.16 229.0<br>0.012 0.0011 4.22 180 0 0 189.5<br>150 150 160 1 | 0.0017 0.0025 2.34 340 0 0.44 30.8<br>0.0039 0.0016 4.13 30 0 0.31 68.0<br>0.0055 0.0029 7.83 120 0 0.33 58.6<br>0.0041 0.0014 4.04 100 0 0.33 58.6<br>0.0042 0.0036 6.52 >2000 0 0 0.16 229.0<br>0.012 0.0011 4.22 180 0 0 189.5<br>120 150 160 160 160 189.5<br>1440 | 0.00017 0.00025 2.34 340 0 0.44 30.8 0.00039 0.00016 4.13 30 0 0.31 68.0 0.00055 0.00029 7.83 120 0 0.33 58.6 0.00041 0.00014 4.04 100 0 0 0.33 58.6 0.0012 0.0011 4.22 180 0 0 189.5 120 120 150 1440 |

APPENDIX 5a (cont.). 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

| SC-MONIA         SEGMONIA         SEGMONIA         SEGMONIA         1170         OAMB         1771         OAMB         1771         OAMB         1771         OAMB         1771         OAMB         1771         OAMB         247         OAMB         0         <   | Station # | Date                 | Time | DOE Lab                | DOE Field # | MG-D<br>mg/l as | mg/l ass | mg/l as | mg/l as | Se Se | Mg/l as | Se Nos | Se N | P P P |      |  |
|--|-----------|----------------------|------|------------------------|-------------|-----------------|----------|---------|---------|-------|---------|--------|------|-------|------|--|
| 990779 774 190008674 94000567 1 500 0446 2 29 0012 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |           | 99/06/26             | 2032 | 199905181              | 94/00493    | 1.170           | 0.048    | 1.71    | 0.012   | 0     | 0       | 0      | 0    | 0     | 7.72 |  |
| 98/07/11         1744         198908674         94/000567         1 600         0.046         2.23         0.012         0.012         0.09         0.0   |           | 99/07/19<br>99/08/23 | 1756 | 198908965              | 94/00620    | 1.690           | 0.040    | 247     | 0.010   | 0     | 0       | 0      | 0    | 0     | 7.52 |  |
| 9800077 1750 19890188 9400067 1650 0158 173 0012 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |           | 0012000              | .744 | AT3300001              | 04/00/561   | 1 600           | 0.046    | 2.29    | 0.012   | 0     | 0       | 0      | 0    | 0     | 7.76 |  |
| Septicary   1150   1989/2819   94/00665   1,120   0,012   1,145   0,011   0,012   0,012   1,145   0,011   0,012   0,012   1,145   0,011   0,012   0, | 4         | 99/08/23             | 1335 | 199908386              | 29/00/66    | 1.650           | 0.058    | 2.16    | 0.012   | 0     | 0       | 0.00   | 0.00 | 00    | 6.90 |  |
| Septimizer   1756   1989016887   Septimizer   Septimize |           | 99/10/17             | 1345 | 199911158              | 94/00664    | 1.020           | 0.031    | 1.45    | 0.00    | 00    | 00      | 00     | 00   | 00    | 6.94 |  |
| 99407711   1719   198905895   94006519   0.820   0.024   0.79   0.015   0.00 |           | 2000000              | 1736 | 199308987              | 60900/66    | 1.430           | 960.0    | 1.02    | 0.014   | 0     | 0       | 0      | 0 (  | 00    | 7.01 |  |
| 9907711         1716         198905897         9400513         0 910         0 076         1.54         0 077         0         0         0 065         0.065           9907711         1706         198905897         9400519         1220         0 031         1.54         0 077         0<  |           | 99/09/27             | 1230 | 199911155              | 94/00663    | 0.930           | 0.051    | 0.79    | 0.015   | 00    | 00      | 00     | 00   | 00    | 999  |  |
| 9907711         1746         199905993         9400519         0.820         0.031         132         0         0         0.465         0.45           9907711         1746         199905983         9400510         1.220         0.0231         4.04         0.012         0   |           | 98/07/11             | 1719 | 199905987              | 94/00513    | 0.910           | 0.076    | 1.54    | 0.077   | 0     | 0       | 0.05   | 0.05 | 0     | 7.04 |  |
| Septical S | 5         | 98/07/11             | 1706 | 198905993              | 94/00519    | 0.820           | 0.031    | 1.32    | 0       | 0     | 0       | 0.45   | 0.45 | 0     | 7.06 |  |
| 99/08/22 1442 199906898 94/00610 1340 0.021 4.59 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 2         |                      |      | 1000015085             | 04/00510    | 1 230           | 2,050    | 4.04    | 0.012   | 0     | 0       | 0      | 0    | 0     | 7.40 |  |
| 99/06/25         11442         199906/17         94/00469         0.560         0.005         1.31         0.010           |           | 99/08/23             |      | 199908968              | 94/00610    | 1.340           | 0.021    | 4.59    | 0       | 0     | 0       | 0      | 0    | 0     | 8.   |  |
| 990/2017 1425 199906673 94/00550 0.620 0.005 131 0.010 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |           | 99/06/25             | 1442 | 199905172              | 94/00487    | 0.560           | 0        | 50      | 0       | 0     | 0       | 0      | 0    | 0 0   | 7.43 |  |
| 99006075 1906 19990890777 9400517 0.630 0.007 1.39 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |           | 99/00/20             | 1602 | 199906673              | 94/00550    | 0.620           | 0.005    | 1.31    | 0.010   | 00    | 00      | 00     | 00   | 00    | 7.18 |  |
| 990'60'25 1346 1999'05171 94/00496 0.650 0.0063 1.41 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |           | 99/08/05             | 1605 | 199907771              | 94/013/3    | 0.630           | 0        | 1.39    | 00      | 0     | 0       | 0      | 0    | 0     | 7.42 |  |
| 99/06/25         1415         199905171         94/00496         0.590         0         1.35         0.023         0  |           | 99/09/23<br>99/10/17 |      | 199909940<br>199912819 | 94/01530    | 0.650           | 0.007    | 1.47    | 00      | 00    | 00      | 00     | 00   | 00    | 7.8  |  |
| 99/06/25 1346 199905170 94/00485 0.980 0.038 1.80 0.027 0 0 0.11 0.11 0.11 99/06/28 2133 199805184 94/00486 0.750 0.025 1.52 0.014 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | _         | 38/06/25             | 1415 | 199905171              | 94/00486    | 0.590           | 0        | 1.35    | 0.023   | 0     | 0       | 6      | 0    | 0     | 7.42 |  |
| 99/09/27 1455 199911156 94/00666 0.750 0.025 1.52 0.014 0 0 0 0 0 0 0 0 0 99/08/29 1543 199908512 99/06/29 0.970 0.284 2.08 0.016 0 0 0 0 0 0 0 99/08/17 16/05 199908558 94/00590 0.520 0.074 1.42 0.011 0 0 0 0 0 0 0   | 0         | 99/06/25             |      | 199905170              | 94/00485    | 0.980           | 0.038    | 1.80    | 0.027   | 0     | 0       | 0.11   | 0.11 | 0     | 7.29 |  |
| 99JUBLY29 1543 199908312 95IO0606 0.970 0.284 2.08 0.016 0 0 0 0 0 0 0 0 99JUBLY 1606 199908558 94IO0590 0.520 0.074 1.42 0.011 0 0 0 0 0 0 0  |           | 99/09/27             | 1455 | 199911156              | 94/00666    | 0.750           | 0.025    | gas     | 0.014   | 0     | 0       | 0      | 0    | 0     | 6.50 |  |
| 99/06/17 1605 199908558 94/00590 0.520 0.074 1.42 0.011 0 0 0 0 0 0 0 99/06/17 1520 199908556 94/00522 0.400 0.008 1.02 0 0 0 0 0 0  | õ         | 99/08/29             | 1543 | 199909312              | 90900/66    | 0.970           | 0.284    | 2.08    | 0.016   | 0     | 0       | 0      | 6    | 0     | 7.33 |  |
| 99/08/17 1520 199908656 94/00522 0.400 0.008 1.02 0 0 0 0 0  | Ξ         | 99/06/17             |      | 199908558              | 94/00590    | 0.520           | 0.074    | *       | 0.011   | O     | 0       | 0      | 0    | 0     | 20   |  |
|  | ×         | 99/08/17             |      | 199908556              | 94/00522    | 0.400           | 0.008    |         | 0       | 0     | 0       | 0      | 0    | 0     | 6.68 |  |

APPENDIX 5s (cont.), 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zaro (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| Station #     | C-PAL1   | C-DEAD1   | C-THIRD1  | C-WBEV1   | SC-MCAD1  | 6C-DIGY1   | SC-RVB  | SC-RWING   | SC-RBEAC  | SC-CAN2   |
|---------------|--|-----------|-----------|-----------|-----------|--|---|--|-----------|---|
| Date          | 99/06/28<br>99/07/19<br>99/08/23<br>99/09/27     | 99/06/28  | 99/06/28  | 39/07/11  | 99/07/11  | 99/06/28<br>99/06/05<br>99/08/05<br>99/10/17               | 99/06/23<br>99/07/18<br>99/08/22<br>99/10/17                  | 99/06/23<br>99/07/18<br>99/08/22<br>99/09/08<br>98/10/17 | 99/10/17  | 99/06/23<br>99/07/18<br>99/08/05<br>99/08/17      |
| Time          | 2200<br>1901<br>2025<br>1830<br>1500             | 1325      | 1923      | 2030      | 2000      | 2305<br>1940<br>1750<br>2045<br>1920<br>1520               | 1206<br>2066<br>1925<br>1825<br>1756<br>1535                  | 1300<br>2027<br>1820<br>1745<br>1640<br>1605             | 1706      | 1030<br>1750<br>2030<br>2110<br>1815              |
| DOE Lab       | 199905182<br>199908990<br>199911157<br>198912820 | 199905185 | 199905186 | 199905986 | 199905992 | 199905187<br>19990677<br>19990891<br>19990899<br>199912821 | 199904898<br>199906589<br>199908893<br>199909893<br>199912822 | 199904911<br>199906587<br>199908692<br>199912623         | 199912824 | 199904896<br>199906596<br>1999007775<br>199906559 |
| DOE Field #   | 94/00494<br>94/00549<br>94/00612<br>94/01670     | 94/00497  | 94/00498  | 94/00512  | 94/00520  | 94/00499<br>94/00547<br>94/01374<br>94/01529<br>94/01574   | 94/00431<br>94/00553<br>94/01378<br>94/01528<br>94/01563      | 94/00449<br>94/00552<br>94/00605<br>94/01527<br>94/01564 | 94/01567  | 94/00429<br>94/00546<br>94/01377<br>94/00592      |
| mg/l as       | 0.520<br>0.520<br>0.640<br>0.530<br>0.560        | 0.800     | 0.360     | 0.730     | 0.610     | 0.360<br>0.390<br>0.460<br>0.470<br>0.440                  | 0.480<br>0.430<br>0.530<br>0.530<br>0.540                     | 0.460<br>0.450<br>0.520<br>0.580<br>0.550                | 0.570     | 1.170   |
| mg/l as<br>Mn | 0.025  | 0.350     | 0.063     | 0.037     | 0.050     | 0.035<br>0.021<br>0.021<br>0.017<br>0.045                  | 0.014<br>0.013<br>0.008<br>0.013<br>0.013                     | 0.016<br>0.013<br>0.006<br>0.009<br>0.009                | 0.003     | 0.063   |
| Na Na         | 3 4 4 5 5  | 2.68      | 122       | 4.26      | 1.30      | 1.87<br>1.99<br>2.23<br>2.23<br>2.33<br>2.18               | 140<br>143<br>145<br>146<br>166                               | 1.42<br>1.44<br>1.44<br>1.49                             | 1.62      | 2.23<br>2.34<br>2.36<br>1.89                      |
| se Ngm<br>N   | 0.010  | 0.046     | 0.027     | 0.019     | 0.024     | 0.01   | 00000   | 0.010  | 0         | 0.013   |
| mg/l as       | 00000  | 0         | 00        | 0         | 0         | 000000   | 00000   | 000000   | 0         | 00000   |
| se you        | 00000  | 0         | 00        | 0         | 0         | 00000  | 00000   | 00000  | 0         | 00000   |
| ng/l as       | 90000  | 0         | 00        | 0         | 0         | 000000   | 000000  | 00000  | 0         | 00000   |
| se Ngm<br>N   | 80000  | 0         | 00        | 0         | 0         | 00000  | 00000   | 00000  | 0         | 00000   |
| Po de         | 00000  | 0         | 00        | 0         | 0         | 000000   | 00000   | 000000   | 0         | 00000   |
|               | 7.45   | 7.30      | 7.01      | 29.       | 5.50      | 6.93<br>6.87<br>7.01<br>6.54<br>6.73                       | 705<br>7.24<br>7.24<br>6.70<br>6.70                           | 7.10<br>7.22<br>7.02<br>7.27<br>6.74<br>6.74             | 7.01      | 7.32 7.19 7.19 7.13                               |

APPENDIX 5s(cont.). 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (U) reflect no detectible value at the limit of quantification (see test methods at end of table).

| Station #     | SC-CAN1   | SC-KING2  |          | SC-RGLEAS |           |           |           | SC-RW00D  |        | SC-RGRAS  |         | SC-RBUTL  | 76010     | ELOV-     |           |           |                        |            |           |           |           |           | SC-MOH2   | SC-MOH3   | SC-D0002  | SC.DMTR   |           |           |           |
|---------------|-----------|-----------|----------|-----------|-----------|-----------|-----------|-----------|--------|-----------|---------|-----------|-----------|-----------|-----------|-----------|------------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Date<br>y/m/d | 99/08/17  | 71/01/86  |          | 99/06/23  | 99/0/18   | 99/08/22  | 99/01/18  | 99/08/30  |        | 99/07/07  |         | 99/07/07  | COSTOCO   | 99/17/18  | 99/08/06  | 99/08/30  | 99/09/15               | oo we man  | 99/07/18  | 99/08/06  | 99/08/22  | 99/09/26  | 99/06/22  | 92/60/95  | 70/70/66  | 62/90/06  | 99/07/18  | 99/08/06  | 99/08/22  |
| Time          | 2030      | 1750      |          | 0820      | 27.50     | 1550      | 1715      | 1106      |        | 1136      |         | 1220      | 0100      | 1645      | 1630      | 1325      | 1635                   | OBEO       | 1630      | 1706      | 1500      | 1645      | 1520      | 1700      | 1700      | 830       | 1620      | 1730      | 1445      |
| DOE Lab #     | 199908557 | 199912826 |          | 199904895 | Caconassi | 199906903 | 199912971 | 199909407 |        | 199909408 |         | 199909409 | 199904894 | 199906594 | 199907776 | 199909410 | 199910284<br>199912969 | 1000014893 | 199906593 | 199907777 | 199908901 | 199910945 | 199908902 | 199910944 | 199905815 | 199904892 | 199906592 | 199907778 | 199908900 |
| DOE Field #   | 94/00559  | 94/01569  | 00100110 | 94/00428  | 04100603  | 94/00003  | 94/01570  | 94/00615  | 000000 | 99/00616  | 2030000 | 94/00617  | 94/00427  | 94/00544  | 94/01378  | 94/00618  | 94/01587               | 94/00426   | 94/00543  | 94/01379  | 94/00601  | 94/01571  | 94/00602  | 94/00482  | 94/00502  | 94/00/25  | 94/00554  | 94/01380  | 94/00000  |
| mg/l as       | 1.040     | 2.620     | 000      | 0.010     | 0.530     | 1 060     | 0.700     | 0.580     | 0000   | 0.590     | 0       | 0.900     | 0.780     | 0.920     | 0.990     | 0.900     | 0.680                  | 1.180      | 1,110     | 1.400     | 1.360     | 1.290     | 1.430     | 1.580     | 3.360     | 0 930     | 066.0     | 0007      | 0800      |
| mg/l as       | 0.058     | 0         | 0 000    | 0000      | 0.00      | 0.020     | 0.012     | 0.018     | 3300   | 0.016     | 0.084   | 0.061     | 0.064     | 0.068     | 0.068     | 0000      | 0.024                  | 0.021      | 0.026     | 0.030     | 0.015     | 0 0 0 16  | 0.014     | 0.086     | 0.113     | 0 082     | 0.063     | 6000      | 0 069     |
| se l'gm<br>Na | 2.38      | 1.90      | 33 1     | 1.65      | 147       | 1.30      | 1.46      | 2 03      |        | 1.71      | 10.20   | 12.50     | 7.76      | 12.90     | 13.80     | 14.00     | 4.05                   | 2.45       | 3.08      | 331       | 3.40      | 2.34      | 3.53      | 2.57      | 5.12      | 13.60     | 15.50     | 3 6       | 18 20     |
| mg/ as        | 0.016     | 0.016     | C        | 0.011     |           | 0         | 0         | 0         | 9100   | 0         | 0.089   | 0.084     | 0.059     | 0.047     | 0.047     | 0.00      | 0.024                  | 0          | 0         | 0 0       | 00017     | 0         | 0.019     | 0.023     | 0 041     | 0.060     | 0.012     | 0.035     | 0.028     |
| No. 15        | 0         | 0         | C        | 0         | 0         | 0         | 0         | 0         | C      | 0         | 0       | 0         | 0         | 0         | 00        | 0 0       | 0                      | 0          | 0         | 00        | 00        | 0         | 0         | 0         | 0         | 0 (       | 00        | 0         | 0         |
| ng/l as       | 0         | 0         | 0        | 0         | 0         | 0         | 0         | 0         | 0      | 0         | 0       | 0         | 0.15      | 0 0       | 0 0       | 0         | 0                      | 0          | 0 0       | 00        | 00        | 0         | 0         | 0         | 0         | 00        | 00        | 0         | 0         |
| ng/l as       | 0         | 900       | 0        | 0         | 0         | 0         | 0         | 0         | 0      | 0         | 0.15    | 0.18      | 0         | 0         | 0.31      | 0.18      | 0                      | 0          | 00        | 00        | 600       | 0.07      | 0         | 0.07      | 60 0      | 0.25      | 0.28      | 0 13      | 0 28      |
| Mg/l as       | 0         | 900       | 0        | 0         | 0         | 0         | 0         | 0         | 0      | 0         | 0.15    | 0.18      | 0.15      | 070       | 0.37      | 0.18      | 0                      | 0          | 00        | 00        | 60.0      | 0.07      | 0         | 20.0      | 0.09      | 0 25      | 0.28      | 0.13      | 0 28      |
| Pb<br>Pb      | 0         | 0         | 0        | 0         | 0         | 0         | 0         | 0         | 0      | 0         | 0       | 0         | 0 0       | 00        | 00        | 0         | 0                      | 0 (        | 000       | 0         | 0         | 0         | 0         | 0         | 0         | 00        | 00        | 0         | 0         |
|               | 7.26      | 7.48      | 7.1      | 7.22      | 7.2       | 6.62      | 90        | 06.90     | 7.19   | 7.0       | 7.32    | 7.2       | 7.24      | 100       | 7.3       | 6.8       | 7.0                    | 7.23       | 7.4       | 7.59      | 6.13      | 6.63      | 7.47      | 6.12      | 7.73      | 7         |           | -         | 7.05      |

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Field and Laboratory Data.
Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

| £               | 7.11                 | 7.29      | 7.31   | 7.63                 |           |           | 7.05                                | 227  | 7.58                   |                        |                        | 7.37      |
|-----------------|----------------------|-----------|--|----------------------|-----------|-----------|-------------------------------------|--|------------------------|------------------------|------------------------|-----------|
| PB              | 0                    | 0         | 000000   | 0                    |           |           | 000                                 | 1.41   | 1.53                   |                        |                        | 0         |
| NOK<br>Mg/l as  | 3.10                 | 2.20      | 000000   | 0                    |           |           | 0.12                                | 1.20   | 0.53                   |                        |                        | 0.11      |
| NO3<br>Ng/l as  | 3.10                 | 2.20      | 000000   | a                    |           |           | 0.12                                | 0.20   | 0.53                   |                        |                        | 0.11      |
| NO2<br>mg/l as  | 0                    | 0         | 00000  | 0                    |           |           | 000                                 | 1.12   | 0.42                   |                        |                        | 0         |
| Ngm as          | 0                    | 0         | 0 0000   | 0                    |           |           | 000                                 | 0000   | 0                      |                        |                        | 0 0063    |
| MH3 mg/l as     | 0.830                | 1.000     | 0.0020   | 0                    |           |           | 0.022                               | 0.430  | 0.350                  |                        |                        | 0.016     |
| Mg/l as         | 12.50                | 10.90     | 7.99<br>15.30<br>12.70<br>8.85<br>8.01                       | 5.95                 |           |           | 1.91<br>5.31<br>5.38                | 180.00                                       | 13.60                  |                        |                        | 3.42      |
| mg/l as<br>Mn   | 0.140                | 0.148     | 0.029<br>0.032<br>0.022<br>0.028<br>0.037                    | 0.022                |           |           | 0.054                               | 0.422  | 0.490                  |                        |                        | 0.035     |
| MG-D<br>mg/l as | 3.390                | 3.450     | 1.150<br>1.560<br>1.340<br>1.380<br>1.650                    | 1.340                |           |           | 0.920                               | 4.660  | 2 280                  |                        |                        | 2.630     |
| DOE Field #     | 94/00506             | 94/00505  | 94/00424<br>94/00521<br>94/01381<br>94/00599<br>94/01525     | 94/00591             | 94/01586  | 94/01565  | 94/00430<br>94/00604<br>94/01562    | 94/00675<br>94/00478<br>94/01580<br>94/01580 | 94/00479               | 94/01583               | 94/01584               | 94/00676  |
| DOE Lab         | 199905817            | 199905816 | 199904691<br>199906591<br>19990899<br>199909895<br>199912965 | 199908694            | 199913055 | 199913057 | 199904897<br>199908904<br>198911154 | 199908981<br>199910261<br>199913052          | 199910262<br>199913056 | 199913053<br>198613000 | 199913054<br>199913061 | 199908960 |
| ADT             | 1545                 | 1710      | 0805<br>1555<br>1430<br>0820<br>1330                         | 1645                 | 1340      | 1330      | 1115<br>1625<br>1920                | 1415<br>1420<br>1420<br>1420                 | 1140                   | 1410                   | 1415                   | 1340      |
| Date<br>yim/d   | 99/07/07<br>99/10/18 | 99/07/07  | 99/05/23<br>99/07/18<br>99/08/06<br>99/09/08                 | 99/08/22<br>99/10/19 | 99/10/19  | 98/10/19  | 99/06/23<br>99/06/22<br>99/09/27    | 99/06/23<br>99/09/15<br>99/10/19             | 99/09/15               | 99/10/19               | 99/10/19<br>99/10/19   | 99/08/23  |
| Station #       | SC-TAN1              | SC-TAN2   | SC-DEN1  | SC-DEN2              | SC-DENZA  | SC-DENZB  | SC-DENS                             | SC-BILL1                                     | SC-BILLIA              | SC-BILL18              | SC-BILLIC              | SC-81112  |

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Field and Laboratory Data.
Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| Station # | Date   | Time                                 | DOE Lab   | DOE Field #  | MG-D<br>mg/l as                                    | NN Se Se                                  | No. No.                                      | MH3<br>mg/l as | IN OF IN | NO2<br>mg/s as | NO3                                  | NON NOW N                            | 8      | Ŧ.   |  |
|-----------|--|--------------------------------------|---|--|--|---|--|----------------|----------|----------------|--------------------------------------|--------------------------------------|--------|--|--|
| SC-MEAD1  | 99/08/23   | 1300                                 | 199908983<br>199912966  | 94/00678   | 3.650  | 0.148                                     | 16.00  | 00             | 00       | 00             | 00                                   | 00                                   | 00     | 7.56   |  |
| SC-MEAD4  | 99/08/23   | 1430                                 | 199908982   | 94/00679   | 4.140  | 0.186                                     | 12.60  | 710.0          | 0        | 0              | 0.27                                 | 0.27                                 | 0      | 7.98   |  |
| SC-HAT2   | 99/06/23   | 1445                                 | 199906984   | 94/00691   | 4,520  | 0   | 16.00  | 0              | 0        | 0              | 0.20                                 | 0.20                                 | 0      | 8.17   |  |
| SC-BENS1  | 99/06/29   | 0725<br>1510                         | 199905189   | 94/00480   | 3.990  | 0.051                                     | 23.70  | 9000           | 00       | 00             | 0.10                                 | 0.10                                 | 00     | 7.94   |  |
| SC-PARK1  | 99/10/18   | 750                                  | 199912629   | 94/01573   | 3,680  | 0.104                                     | 61.20  | 0              | 0        | 0              | 0.21                                 | 0.21                                 | 0      | 7.47   |  |
| SC-GALL1  | 99/06/23<br>99/07/18<br>99/08/22<br>99/09/27             | 0735<br>1520<br>1930<br>1940<br>1240 | 199904690<br>19990590<br>199908896<br>199909894<br>199912964  | 99/00423<br>94/00514<br>94/01382<br>94/01524<br>94/01578 | 0.830<br>0.870<br>0.830<br>0.880<br>1.910          | 0.024<br>0.023<br>0.026<br>0.035          | 2.25<br>2.25<br>2.25<br>2.45<br>2.46<br>2.46 | 00000          | 000000   | 000000         | 0.06<br>0.06<br>0.06<br>1.49<br>0.41 | 0.06<br>0.06<br>0.06<br>0.06<br>0.41 | 000000 | 7.25<br>7.02<br>7.25<br>7.25<br>7.14<br>6.82 |  |
| SC-COTT2  | 70/70/96   | 1900                                 | 199905818   | 94/00507   | 2.240  | 0.642                                     | 12.20  | 0.172          | 0        | 0              | 90'0                                 | 900                                  | 0      | 7.22   |  |
| SC-WAW1   | 99/05/23<br>99/07/18<br>99/08/06<br>99/08/22<br>99/10/18 | 0625<br>1950<br>1950<br>1350<br>1351 | 199904887<br>199906589<br>199907781<br>199908895<br>199909993 | 94/00420<br>94/00511<br>94/01363<br>94/01523<br>94/01523 | 1,080<br>0,970<br>1,030<br>1,030<br>1,020<br>1,100 | 0.034<br>0.047<br>0.028<br>0.029<br>0.014 | 5.08<br>5.14<br>5.14<br>5.90<br>4.14         | 0.0022         | 000000   | 00000          | 0.02<br>0.08<br>0.12<br>0.24<br>0.53 | 0.08<br>0.08<br>0.12<br>0.53         | 000000 | 7.28<br>7.34<br>7.34<br>7.46<br>6.92<br>6.88 |  |
| SC-WAW3   | 99/06/23<br>99/10/18                                     | 0710<br>1330<br>1215                 | 199904868<br>199908896<br>198912962                           | 94/00421<br>94/00596<br>94/01576                         | 0.950  | 0.040                                     | 3.44   | 0.012          | 000      | 000            | 0.11                                 | 0.11                                 | 000    | 7.20   |  |
| SC-POUT2  | 99/06/23<br>99/10/18                                     | 0665<br>1325<br>1225                 | 199904889<br>199902963  | 94/00422<br>94/00597<br>94/01577                         | 0.830<br>1.080<br>0.900                            | 0.084                                     | 3.77   | 0.010          | 000      | 000            | 0000                                 | 0000                                 | 000    | 7.14<br>7.41<br>6.81                         |  |
| sc coldi  | 99/07/07   | 1945                                 | 199905820   | 94/00509   | 1.070  | 0.021                                     | 523  | 0.012          | 00       | 00             | 00                                   | 00                                   | 00     | 7.36   |  |
| sc-GoLD2  | 70/70/86   | 1915                                 | 199905819   | 94/00508   | 0.680  | 0.034                                     | 3.01   | 0.013          | 0        | 0              | 0                                    | 0                                    | 0      | 7.10   |  |
| SC-GRIAW  | 99/08/29 1920  | 1920                                 | 199909314   | 39/00672   | 1,820  | 0.013                                     | 3  | 0.015          | 0        | 0              | 0                                    | 0                                    | 0      | 7.51   |  |

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APPENDIX 5a (cont.), 1999 St. Croix Stream Study Fleid and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

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4.45 9.45 23.40 8.52

0.0085 0.030 0.029 MAN mg/l as 1.810 0.980 1.970 3.540 1.750 4.540 MG-D mg/l as DOE Field # 94/00500 94/00614 94/00700 94/01565 94/00481 94/00484 199905188 199900992 199910941 199912827 199910942 199912828 DOE Lab 199910946 1435 ADT 0725 0725 1366 1906 1401 99/06/29 99/06/24 99/10/17 99/09/24 99/09/26 99/10/17 99/09/26 Date y/m/d Station # SC-JOHINI SC-POT1 SC-POT2

T = trace. L = below limit of quantification. Q = not a quality assured parameter.

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| DATA    | appropri   |
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|              | 94/00694 | 94/00693 | 94/00692 | 94/00691 | 94/00695 | 94/00696 | 94/00697 | 94/00696 | 94/01590 | 94/00699   |
|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------|
|              |          |          |          |          |          |          |          |          | 17679961 | 1000007076 |
|              | 1225     | 1211     | 1156     | 1066     | 1231     | 1242     | 78       | 1306     | 1030     | 1315       |
| 212          | 99/09/22 | 22/60/56 | 99/09/22 | 99/09/22 | 99/09/22 | 99/09/22 | 22/60/66 | 99/09/22 | 99/10/27 | 99/09/22   |
| ביותיין הייו | SC-EWAW1 | SC-EWAW2 | SC-EWAW3 | SC-EWAW4 | SC-ESCR1 | SC-ESCR2 | SC-ESCR4 | SC-ESCR6 | SC-ESCR8 | SC-ESCR9   |
|              |          |          |          |          |          |          |          |          |          |            |

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0.069 0.0065 0.069 NS light 0.057 0.550 0.620 0.640 0.820 1.180 0.620 0.590 00000 0.220 0.440 0.680 Mg/ as 0.220 0.400 0 220 1.2 0.8 0.00 0.0 1.0 4.000 NTO NTO 0.1 9.0 0.5 9.0 9.0 0.1 TP-L mol as 80000 0.014 0.003 0.010 0.023 0.030 0.022 0.017 0.012 0.011 0.054 0.006 0.005 APPENDIX 5a (cont.), 1999 St. Croix Stream Study Fleid and Laboratory Data. Values shown as zero (0) reflect no detactible value at the limit of quantification (see test methods at end of table) residue No. a 0000 000 0 0 00 00000 0 0 0 0 0 0 16 2 8 8 8 8 3.73 0.46 220 3.47 3.24 3.15 2.36 3.49 2.82 3.22 3.30 4.11 3.03 2.46 2.39 SO4 2.91 SE Non a 0 0000 000 0 0 00 00000 0 0 0 0 0 0 Fields 99/00609 94/00663 94/00664 94/00510 94/00467 94/00550 94/01373 94/00611 94/01530 94/00669 94/00620 94/00485 94/00/493 94/00551 34/00513 94/00519 94/00486 34/00666 9900096 94/00590 94/00522 1 DOE 199906987 199911155 199912817 199907771 199908999 199912819 DOE Lab # 199906966 199911156 199912818 199905985 199905170 199908985 199905987 99905993 99905172 199909312 199905181 199905171 199911156 99906558 99906556 1 ADT 2032 1755 1325 345 220 22 708 1740 1442 2114 2114 1605 1930 2000 1425 1415 1346 1455 1543 605 99/06/28 98/07/19 99/08/23 99/04/23 99/09/27 99/09/77 98/08/23 98/08/27 39/10/17 99/06/25 99/06/28 99/07/19 99/08/05 96/08/23 99/09/09 99/10/17 99/07/11 99/07/11 99/08/23 99/06/25 99/08/29 11//0/86 Date y/m/d 39/06/25 72/80/86 99/08/17 99/08/17 SC-MON1A Station # SC-NMILL1 SC-EGTR1 SC-MUSQ1 SC-MON2 SC-MON1 SC-BOLT1 SC-EBRK SC-SMED SC-HAY1 SC-MUD1 SC-FC1 SC-PIR1

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0.012 0.0075 0.0070 0.0067 0.0096 NZ NZ well as 0.380 0.640 0.450 0.830 0.900 0.330 0.340 0.320 0.400 0.550 0.220 0.220 0.240 0.240 0.230 0.300 0.300 0.570 0.780 0.770 0.730 0.000 TIGN 35 0.0 00000 0.5 0.2 0.00 0. 4.0000 4 4 4 4 6 0 12 47.7.880 8 0.000 0.010 0.042 0.016 0.018 0.009 0.009 0.007 0.013 000000 000000 9000 0.028 0.028 0.033 0.033 0.018 100 TP-C Non APPENDIX 5a (cont.), 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table) TON 35 8 00000 0 00 0000000 0 0 0 0000 000000 000000 2.50 2.50 2.50 3.50 3.50 3.50 3.50 20. 1.81 1.46 0.76 22.85 2.78 2.39 2.72 2.80 72 88 75 55 55 SO4 204 se ligu 00000 0 00 0 0 000000 000000 000000 0 000000 BOE Field # 94/00494 94/00549 94/00663 94/01670 94/00613 94/01529 94/01574 94/00498 94/00499 94/00431 94/01376 94/00606 94/01528 94/01563 94/01527 94/01527 94/01564 94/00546 94/01377 94/01561 94/01568 94/00512 94/01374 94/00449 34/00497 94/00520 94/01567 34/00/29 34/01375 1 199908990 199911157 199912820 199908991 199909899 199912821 199908893 199908893 199912822 DOE Lab # 199905187 199904898 199908692 199908697 199912823 199905185 199904911 199904896 199907775 199908559 199912825 199905182 3290665 198905186 199906676 199905992 199905986 199907772 99912824 Time 2200 1901 1902 1830 1500 325 2240 2305 1940 1750 2045 1920 520 2030 2030 2110 1815 1735 2030 2000 205 2055 825 755 535 535 2027 2027 1820 1745 1640 705 99/06/28 99/06/28 99/10/17 99/08/23 99/08/23 99/09/08 99/10/17 99/08/05 99/09/08 99/10/17 99/06/23 99/07/18 99/08/05 99/09/08 99/09/08 99/05/23 99/05/18 99/06/05 99/09/26 99/07/19 89ADB/23 99/07/11 99/07/11 99/10/17 Station # SC-THIRD1 SC-WBEV1 SC-MCAD1 SC-RWING SC-RBEAC SC-DEAD1 SC-DIGY1 SC-CAN2 SC-PAL! SC-RVB

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| SC-ROLLEAS BANGNET 1700 199912826 9401569 0 145 0 0005 15 0.960 SC-ROLLEAS BANGNET 1700 199912826 9401569 0 1618 0 0007 04 0.590 SC-ROLLEAS BANGNET 1700 199912826 9401569 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Station #  | Date<br>y/m/d | Time | DOE Lab #  | DOE Field # | SB lgu<br>Sb | SO4<br>SO4 | TSS<br>mg/l as<br>residue | TP-L<br>mg/ as | Turb<br>NTU | TKN<br>mg/l as | Not as  |
|--|------------|---------------|------|------------|-------------|--------------|------------|---------------------------|----------------|-------------|----------------|---------|
| 99/10/17         1730         198912876         94/01/56         0         618         0         0007         0.4         0590           99/10/17         1730         198902486         94/01/57         0         289         0         0.007         0.4         0.000           99/02/27         1550         198902860         94/02/57         0         270         0 <td>SC-CAN1</td> <td>71/80/86</td> <td>2030</td> <td>199908557</td> <td>94/00559</td> <td>0</td> <td>1.45</td> <td>0</td> <td>0.026</td> <td>1.6</td> <td>0 660</td> <td>0</td>   | SC-CAN1    | 71/80/86      | 2030 | 199908557  | 94/00559    | 0            | 1.45       | 0                         | 0.026          | 1.6         | 0 660          | 0       |
| SHOWZ2         1996/LegS         94/004/28         0         2.80         0         0         0.5         0.320           SHOWZ7         1520         1996/LegS         94/004/28         0         2.89         0         0.005         0.4         0.10           SHOWZ7         1520         1996/LegS         94/015/70         0         2.70         0         0         0         0         0.4         0.01           SHORAG         1772         1996/LegS         94/015/70         0         2.70         0 <t< td=""><td>SC-KING2</td><td>71/01/96</td><td>1750</td><td>199912826</td><td>94/01569</td><td>0</td><td>6 18</td><td>0</td><td>0.007</td><td>0.4</td><td>0.590</td><td>0</td></t<>  | SC-KING2   | 71/01/96      | 1750 | 199912826  | 94/01569    | 0            | 6 18       | 0                         | 0.007          | 0.4         | 0.590          | 0       |
| 99/07/18         17/20         199909805         94/07/49         0         278         0  | SC-RGLEAS  | 99/06/23      | 0980 | 199904895  | 94/00428    | 0            | 2.80       | 00                        | 0 90           | 9.0         | 0.360          | 0 82000 |
| 99/09/20         11/25         1999/26/17         94/01/56/1         6 93         0 017         0 4         0 50           99/04/20         11/25         1999/26/17         94/01/56/1         0 270         0 270         0 04         0 250           99/04/20         11/25         1999/26/17         94/01/56/1         0 270         0 000         0 04         0 250           99/04/20         11/25         1999/26/1         94/00/57/1         0 000         0 000         0 04         0 250           99/04/20         11/25         1999/26/1         94/00/57/1         0 000         0 000         0 00<  |            | 99/07/18      | 1720 | 199906595  | 94/00545    | 00           | 2.78       | 00                        | 0000           | 0.0         | 0              | 0       |
| Septicate   1775   198912871   94/01570   0   347   0   0   0   0   0   0  |            | 99/09/26      | 1729 | 199910947  | 94/01560    | 0            | 5 93       | 0                         | 0.017          | 0.4         | 0.610          | 0.013   |
| 99/06/20         1105         199903407         9400615         0         270         0         0         0         4         0.250           99/06/20         135         199903406         9400616         0         226         0   |            | 96/10/18      | 1715 | 199912971  | 94/01570    | 0            | 3.47       | 0                         | 0              | 0.4         | 0.370          | 0       |
| 99007/07 1340 199903408 9400563 0 256 0 0009 0.6 0.360 99008/00 1135 199903408 9900561 0 0 266 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | SC-RWOOD   | 99/08/30      | 1106 | 199909407  | 94/00615    | 0            | 2.70       | 0                         | 0              | 0.4         | 0.250          | 0       |
| 9907/77 1430 199905813 94/00516 0 256 0 0 0.022 12 0.510 9908/77 1430 199905813 94/00517 0 9.20 0 0.022 12 0.510 9908/77 1430 199905813 94/00517 0 9.20 0 0.022 12 0.510 9908/77 1430 199905813 94/00517 0 9.20 0 0.022 12 0.510 9908/77 1430 199905813 94/00517 0 9.20 0 0.022 12 0.510 9908/77 1430 199905814 0 94/00517 0 9.20 0 0.022 12 0.510 9908/77 1430 199905814 0 94/00517 0 9.20 0 0.022 12 0.023 0 0.40 9908/77 1430 19990581 0 94/00517 0 0.023 0 0.023 0 0.40 0 9908/77 1430 19990581 0 94/00517 0 0.023 0 0.023 0 0.40 0 9908/77 1430 19990583 0 94/00518 0 0.023 0 0.013 0 0.020 0 0.0 | SAGDO-DO   | 20/20/20      | 1340 | 199905814  | 94/00503    | 0            | 3.29       |                           | 0.00           | 9.0         | 0.360          | 0.0076  |
| 99/08/20 1220 199904694 94/00427 0 13.00 0 0.0022 12 0.510 99/08/20 1220 199904699 94/00427 0 13.00 0 0.0023 12 0.950 0  |            | 98/08/30      | 1135 | 199909408  | 99/00616    | 0            | 2.66       | 0                         | 0              | 0.3         | 0.260          | 0       |
| 99/08/20 1220 199904894 94/00427 0 9.20 0 0.028 0.8 0.390 99/08/20 199904894 94/00427 0 9.20 0 0.033 0.9 0.033 0.9 0.390 99/08/20 199904894 94/00427 0 19.80 0 0.033 0.9 0.033 0.9 0.040 99/08/20 199904894 94/00424 0 15.60 0 0.033 0.9 0.033 0 | TI DBITTI  | TOTAL         | 1430 | 199905813  | 94/00504    | 0            | 13.00      | 0                         | 0.022          | 1.2         | 0.510          | 0.0067  |
| 99/06/23         0910         19990484         94/00427         0         980         0         0021         1.4         0.410           99/06/18         1645         19990594         94/00544         0         13.10         0         0.033         0.9         0.480           99/08/10         1625         19990776         94/01547         0         15.10         0         0.032         0         0.440           99/08/10/18         1625         19990481         94/01547         0         9.17         0         0.032         0         0.440           99/08/10/18         1635         19990483         94/01547         0         9.17         0         0.016         1.4         0.30           99/08/10/18         1635         19990483         94/00/57         0         2.39         0         0.016         1.4         0.30           99/08/10/18         1635         199906893         94/00/57         0         2.39         0         0.016         1.4         0.30           99/08/12         165         199906893         94/00/57         0         2.49         0         0.015         1.4         0.30           99/08/12         165         199  |            | 99/08/30      | 1220 | 199909409  | 94/00617    | 0            | 9.20       | 0                         | 0.028          | 0.0         | 0.390          | 0       |
| 99/06/16         1645         199906564         94/00544         0         1310         0         0.033         0.9         0.480           99/06/16         1620         199906410         94/013/18         0         15.80         0         0.034         0         0.440           99/06/16         1620         199907776         94/013/18         0         15.80         0         0.034         0         0.440           99/06/17         1635         199910244         94/015/47         0         0.026         1.0         0.320           99/06/18         1635         199906833         94/00543         0         2.39         0         0.013         1.4         0.320           99/06/18         1630         199908633         94/00543         0         2.39         0         0.013         1.4         0.320           99/06/18         1645         199912377         94/00501         0         3.16         0         0.013         1.4         0.320           99/06/18         1645         199912377         94/00501         0         2.49         0         0.013         1.4         0.030           99/06/17         1645         199912377         94/00502 <td>SC. Bilbid</td> <td>SOMEON</td> <td>0810</td> <td>199904894</td> <td>94/00427</td> <td>0</td> <td>9.80</td> <td>0</td> <td>0.021</td> <td>1.4</td> <td>0.410</td> <td>0</td>  | SC. Bilbid | SOMEON        | 0810 | 199904894  | 94/00427    | 0            | 9.80       | 0                         | 0.021          | 1.4         | 0.410          | 0       |
| 99/06/106         1630         199907776         94/01378         0 1560         0 0034         1 0 0440           99/06/20         1325         199910264         94/01378         0 1560         0 0034         1 0 0440           96/06/20         1635         199910264         94/01647         0 91/0         0 0010         1 4 0 032           96/07/18         1635         199910264         94/01647         0 91/0         0 0010         1 4 0 032           96/07/18         1635         199910264         94/01647         0 0010         1 4 0 032         0 0010         1 4 0 0330           96/07/21         1635         199906931         94/00643         0 0015         0 0013         1 1 0 470           96/07/22         1500         199906931         94/00643         0 0015         0 001   |            | 99/07/18      | 1645 | 199906594  | 94/00544    | 0            | 13.10      | 0                         | 0.033          | 0.0         | 0.480          | 0.016   |
| 99/09/75 1050 199904910 34/00518 0 147/0 0 0.035 0.032 0.0320 99/09/15 1050 199902410 34/01547 0 592 0 0.016 14 0.330 99/09/15 1050 19990492 94/01547 0 592 0 0.016 14 0.330 99/09/16 1630 199906903 94/01547 0 239 0 0.016 14 0.330 99/09/16 1630 199906939 94/00542 0 288 0 0.013 1.1 0.470 99/09/16 1645 199910245 94/00501 0 3.10 0 0.015 0.015 0.0 0.005 99/09/26 1645 199910245 94/00501 0 3.10 0 0.013 1.4 0.090 99/09/26 1645 199910244 94/00502 0 249 0 0.014 0 0.037 1.4 0.090 99/09/26 1700 199906902 94/00502 0 249 0 0.014 0 0.037 1.4 0.090 99/09/26 1700 199906902 94/00502 0 249 0 0.0037 1.9 0.480 99/09/26 1700 199906902 94/00502 0 1580 0 0.037 1.9 0.480 99/09/26 1700 199906902 94/00502 0 1580 0 0.037 1.9 0.480 99/09/26 1700 199906902 94/00502 0 1580 0 0.037 1.9 0.480 99/09/26 1700 199906900 0 1050 0 0.037 1.9 0.480 99/09/26 1700 199906900 0 1050 0 0.037 1.9 0.480 99/09/26 1700 199906900 0 1050 0 0.037 1.9 0.480 99/09/26 1700 199906900 0 1050 0 0.039 1.1 0.440 99/09/26 1445 199908900 94/07/27 0 1050 0 0.039 1.0 0.040 99/09/26 1445 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/27 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/27 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/26 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/27 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/27 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/27 15540 199908900 0 1050 0 0.039 1.0 0.040 99/09/27 15540 199908900 0 1050 0 0.040 0 0.040 99/09/27 15540 199908900 0 1050 0 0.040 0 0.040 99/09/27 15540 199908900 0  |            | 99/08/06      | 1630 | 199907776  | 94/01378    | 0            | 15.80      | 0 (                       | 0.034          | 0.6         | 0.440          | 2000    |
| 99/09/15 1050 199904893 94/01587 0 5.97 0 0010 14 0.330 99/09/15 1635 199904893 94/01587 0 5.92 0 0010 14 0.330 99/09/15 1635 199904893 94/01587 0 5.92 0 0010 14 0.330 99/09/15 1500 199906893 94/01587 0 3.76 0 0013 1.1 0.470 99/08/15 1500 199906891 94/00643 0 0013 1.1 0.470 99/08/15 1500 199906891 94/00643 0 0013 1.1 0.470 99/08/15 1500 199910945 94/00643 0 0013 1.1 0.470 99/08/15 1520 199906902 94/00642 0 2.49 0 0013 1.4 0.090 99/08/15 1700 199906902 94/00642 0 2.49 0 0013 1.4 0.090 99/08/15 1700 199906902 94/00642 0 14.80 0 0013 1.1 0.440 99/08/15 1700 199906902 94/00655 0 14.80 0 0013 1.1 0.440 99/08/15 1700 199906902 94/00655 0 14.80 0 0013 1.1 0.440 99/08/15 1700 199906902 94/00655 0 14.80 0 0013 1.1 0.440 99/08/15 1700 199906902 94/00655 0 14.80 0 0013 1.1 0.440 99/08/15 1700 199906900 0 10.50 0 0013 1.1 0.440 99/08/15 1700 199906900 0 10.50 0 0013 1.1 0.440 99/08/15 1700 199906900 0 10.50 0 0013 1.1 0.440 99/08/15 1700 199908900 0 10.50 0 0013 1.0 0.010 1.1 0.040 99/08/15 1700 199908900 0 10.50 0 0013 1.0 0.010 1.1 0.040 99/08/15 1.0 0.001 1.1 |            | 99/08/30      | 1325 | 199909410  | 94/00618    | 0 6          | 14.70      | 0 6                       | 0.035          | 9 0         | 0.320          | 0       |
| 94/06/22 1500 199904933 94/00426 0 239 0 0.018 1.5 0.560 95/07/22 1500 199906933 94/0043 0 288 0 0.013 11 0.470 95/08/22 1500 199906931 94/00643 0 288 0 0.013 11 0.470 95/08/22 1500 199906931 94/00601 0 310 0 0.013 0 7 0.000 95/08/22 1500 199906902 94/00601 0 895 0 0.0013 0 7 0.000 95/08/22 1520 199906902 94/00602 0 246 0 0.013 14 0.090 95/08/22 1520 199906902 94/00602 0 246 0 0.013 14 0.090 95/08/24 1700 199906902 94/00602 0 14.80 0 0.002 1.2 0.910 95/08/24 1700 199906902 94/00602 0 14.80 0 0.0030 11 0.440 95/08/24 1700 199906902 94/00602 0 15.40 0 0.0030 11 0.440 95/08/24 1700 199906902 94/00602 0 15.40 0 0.0030 11 0.440 95/08/24 1700 199906902 94/00602 0 15.40 0 0.0030 11 0.440 95/08/24 1700 199906902 94/00602 0 15.40 0 0.0030 11 0.440 95/08/24 1700 199906900 94/01602 0 10.000 0 0.0030 11 0.440 95/08/24 1700 199906900 94/01602 0 10.000 0 0.0030 11 0.440 95/08/24 1700 199908900 94/01602 0 10.000 0 0.0030 11 0.440 95/08/24 1700 199908900 94/01602 0 10.000 0 0.0000 0 0.0000 10.0000 95/08/24 1700 199908900 94/01602 0 10.000 0 0.0000 0 0.0000 0 0.0000  |            | 99/10/18      | 1635 | 199912969  | 94/01587    | 00           | 5.92       | 0                         | 0.010          | 1.4         | 0.330          |         |
| 99/09/18 1630 199906593 94/00543 0 288 0 0013 1.1 0.470 99/09/18 1630 199906593 94/00543 0 376 0 0015 0.8 99/09/18 1630 199908901 94/00601 0 310 0 0015 0.8 99/09/19 1645 199910345 94/00601 0 246 0 0013 1.4 0.690 99/09/22 1520 199908902 94/00602 0 246 0 0.014 0.9 99/09/26 1700 199906902 94/00602 0 628 0 0.022 1.2 0.910 99/09/28 1700 199906902 94/00602 0 628 0 0.024 3.8 0.410 99/09/23 830 199906902 94/00602 0 14.80 0 0.037 1.9 0.480 99/09/23 830 199906902 94/00602 0 15.40 0 0.037 1.9 0.480 99/09/24 1730 199906902 94/00602 0 15.40 0 0.037 1.9 0.480 99/09/26 1730 199906909 94/00602 0 15.40 0 0.037 1.9 0.480 99/09/26 1730 199906909 94/00602 0 10.50 0.039 1.0 0.390 99/09/26 1730 199906909 94/00600 0 10.50 0.039 1.0 0.390 99/09/26 1730 199906909 94/00600 0 10.50 0.039 1.0 0.390 99/09/26 1534 199908909 94/01526 0 20.00 0 0.039 1.0 0.390   | STORY OF   | COSUCO        | 0850 | 199904893  | 94/00426    | 0            | 2.39       | 0                         | 0.018          | 1.5         | 0.560          | 0       |
| 99/08/22         1705         19990/777         94/01379         0         376         0         0.015         0.8         0.400           99/08/22         1500         199910945         94/00691         0         0         0         0.013         0.7         0.500           99/08/26         1645         199910945         94/00691         0         0         0         0.013         1.4         0.690           99/08/26         1645         199910945         94/00602         0         2.49         0         0.013         1.4         0.690           99/08/27         1520         199901944         94/00602         0         2.49         0         0.014         0.9         0.380           99/08/26         1700         199901944         94/00602         0         6.28         0         0.022         1.2         0.910           99/08/27         1700         199901944         94/00602         0         6.28         0         0.024         3.8         0.410           99/08/27         1700         199901945         94/00602         0         14.80         0         0.024         3.8         0.410           99/08/26         1730         19990  |            | 99/07/18      | 1630 | 199906593  | 94/00543    | 0            | 2.88       | 0                         | 0.013          | 1.1         | 0.470          | 0.041   |
| 99/09/22 1500 199900901 94/00601 0 310 0 0.013 0.7 0.990 99/09/22 1520 199910945 94/00402 0 8 95 0 0.013 1.4 0.090 99/09/22 1520 199900902 94/00402 0 2.49 0 0.013 1.4 0.090 99/09/22 1520 199904902 94/00402 0 6.28 0 0.0012 1.2 0.910 99/09/23 1700 199904902 94/00502 0 6.28 0 0.0024 3.8 0.410 99/09/23 830 199904902 94/00502 0 14.80 0 0.037 1.9 0.480 99/09/23 830 199904902 94/00502 0 14.80 0 0.030 1.1 0.440 99/09/23 1445 199904900 94/01380 0 16.50 0 0.030 1.1 0.440 99/09/24 1730 199908900 94/01380 0 16.50 0 0.030 1.1 0.440 99/09/24 1534 199908900 94/01380 0 16.50 0 0.039 1.0 0.390 99/09/16 1534 199908900 94/01380 0 10.50 0 0.039 1.0 0.390   |            | 90/90/66      | 1705 | 1199907777 | 94/01379    | 0            | 3.76       | 0                         | 0.015          | 0.0         | 0.400          | 0 00    |
| 99/08/76 1645 199912370 94/01571 0 4.60 0 0.013 14 0.690 99/08/72 1520 199902902 94/006/2 0 0.249 0 0.013 14 0.690 99/08/72 1520 19990492 94/006/2 0 0.024 0 0.022 1.2 0.910 99/08/73 830 19990492 94/006/2 0 0.024 0 0.037 19 0.480 99/08/73 19 0.9900890 94/01380 0 1650 0 0.030 11 0.440 99/08/2 1445 19990890 94/01380 0 1650 0 0.030 11 0.440 99/08/2 1445 19990890 94/01380 0 1650 0 0.039 10 0.990 0 0.039 10 0.990 99/08/2 1445 19990890 94/01380 0 1650 0 0.039 10 0.990 99/08/2 1445 19990890 94/01380 0 1650 0 0.039 10 0.990 99/08/2 1445 19990890 94/01380 0 1650 0 0.039 10 0.990 99/08/1 19 0.990 0 0.039 10 0.990 99/08/2 1445 19990890 94/01380 0 1650 0 0.039 10 0.990 99/08/2 1445 19990890 94/01380 0 1650 0 0.039 10 0.990 99/08/1 19 0.990 0 0.039 10 0.990 99/08/1 19 0.990 0 0.039 10 0.039 10 0.039 10 0.039 99/08/1 19 0.990 99/08/1 19 0.990 0 0.039 10 0.039 10 0.039 99/08/1 19 0.990 99/08/1 |            | 99/08/22      | 1500 | 199908901  | 94/00601    | 0 0          | 3.10       | 0 0                       | 0.013          | 200         | 0 990          | 0.0078  |
| 94/06/72         1520         199908902         94/00602         0         2.49         0         0.014         0         0.380           94/06/76         1700         199908902         94/00602         0         6.28         0         0.022         1.2         0.910           99/06/73         830         19900485         94/00502         0         6.28         0         0.022         1.2         0.410         0           99/06/73         830         19900485         94/00502         0         14.80         0         0.024         3.8         0.410         0           99/08/07         1730         19990895         94/00554         0         15.40         0         0.037         1.1         0.440           99/08/06         1730         19990896         94/01380         0         16.50         0         0.030         1.1         0.400           99/08/02         1445         1990896         94/01380         0         16.50         0         0.039         1.1         0.440           99/08/02         1445         1990896         94/01380         0         10.50         0         0.039         1.0         0.320           99/08/06  |            | 99010118      | 1645 | 198912970  | 94/01571    | 00           | 4.60       | 0                         | 0.013          | 1.4         | 0.690          | 0       |
| 99/09/26 1700 199910944 94/00482 0 883 0 0.022 1.2 0.910 99/06/23 830 199904892 94/00502 0 6.28 0 0.024 3.8 0.410 ( 99/06/23 830 199904892 94/00425 0 14.80 0 0.037 1.9 0.480 99/08/06 1730 199900892 94/01360 0 15.40 0 0.030 1.1 0.440 99/08/06 1730 199900890 94/01360 0 18.10 0 0.030 1.1 0.440 99/08/06 1130 199900890 94/01526 0 20.00 0 0.039 1.0 0.390 99/08/06 1010 199900896 94/0152 0 7.40 0 0.016 2.1 0.410  | SC-MOH2    | 59V0B/22      | 1520 | 199908902  | 94/00602    | 0            | 2.49       | 0                         | 0.014          | 0.9         | 0.380          | 0.0     |
| 99/07/07 1700 199904892 94/00502 0 6.28 0 0.024 3.8 0.410 0 99/06/23 830 199904892 94/00425 0 144.80 0 0.037 1.9 0.480 99/06/1730 199907778 94/05/40 0 15.40 0 0.030 1.1 0.440 99/06/25 1445 19990890 94/07/30 0 10.50 0 0.038 2.4 0.320 99/09/06 10 19990896 94/01/52 0 20.80 0 0.039 1.0 0.390 99/09/06 15.80 199912968 94/01/52 0 7.40 0 0.018 2.1 0.410  | SC-MOH3    | 98/09/26      | 1700 | 199910944  | 94/00482    | 0            | 8.83       | 0                         | 0.022          | 1.2         | 0.910          | 0.014   |
| 99/09/23 830 199904892 94/00425 0 14.80 0 0.037 1.9 0.480 99/09/23 830 198908592 94/00425 0 15.40 0 0.030 1.1 0.440 99/09/25 1730 199907778 94/01380 0 18.10 0 0.040 0.9 0.420 0.9 0.040 0.9 0.040 0.9 0.420 0.9 0.040 0.040 0.0 | SC-D0002   | 70/10/26      | 1700 | 199905815  | 94/00502    | 0            | 6.28       | 0                         | 0.024          | (E)         | 0.410          | 0.0089  |
| 99/07/18   1520   199906592   94/00554   0   15.40   0   0.030   11   0.440   0   0.030   12   0.440   0   0.030   13   0.440   0   0.040   0. | 0          | CONTENTS      | 930  | 199904892  | 94/00425    | 0            | 14.80      | 0                         | 0.037          | 1.9         | 0.480          | 0.024   |
| 1730   199907778   94/01360   0   1810   0   0.040   0.9   0.420     1445   199908900   94/00000   0   10.50   0   0.028   2.4   0.320     1010   199909896   94/01526   0   2.0   0.0     | 0C-1474    | 99000123      | 1620 | 199906592  | 94/00554    | 0            | 15.40      | 0                         | 0.030          | 1.1         | 0.440          | 0.012   |
| 1445 199908900 94/00600 0 10:50 0 0 028 2.4<br>1010 19990896 94/01526 0 20:80 0 0 039 1.0<br>1556 199912968 94/01572 0 7.40 0 0.018 2.1  |            | 99/08/06      | 1730 | 199907778  | 94/01380    | 0            | 18.10      | 00                        | 0.040          | 0.0         | 0.420          | 0.0068  |
| 1010 199900896 94/01526 U 20.80 U UUSS 1.5<br>1556 199912968 94/01572 U 7.40 U 0.018 2.1   |            | 99/08/22      | 1445 | 199908900  | 94/00600    | 0 (          | 20.00      | <b>&gt;</b> C             | 0.030          | 10          | 0 390          | 0       |
|  |            | 99/09/08      | 1558 | 199902368  | 94/01572    | 0 0          | 7.40       | 00                        | 0.018          | 21          | 0.410          |         |

APPENDIX 5s (cont.), 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

| Station &                                  | SC-TAN1                | SC-TAN2              | SC-DEN1   |                                   | SC-DEN2              | SC-DENZA  | SC-DENZB  | SC-DENS                             | SC-BILL1                                     | SC-BILLIA              | SC-BILL18 | SC-BILL1C            | SC-BILL2  |
|--|------------------------|----------------------|-----------|-----------------------------------|----------------------|-----------|-----------|-------------------------------------|--|------------------------|-----------|----------------------|-----------|
| Date                                       | 99/10/18               | 99/07/07<br>99/10/18 | 99/06/23  | 99/08/22<br>99/08/08<br>99/10/18  | 99/08/22<br>98/10/19 | 98/10/19  | 99/10/19  | 99/06/23<br>99/06/22<br>99/06/27    | 99/09/15<br>99/09/15<br>99/10/19             | 99/00/19               | 98/10/19  | 98/10/19<br>98/10/19 | 99/08/23  |
| ADT  | 1545                   | 1535                 | 1556      | 1430<br>0820<br>1330              | 1645                 | 1340      | 1330      | 1115<br>1625<br>1920                | 1415<br>1125<br>1420<br>1420                 | 1140                   | 1410      | 1415                 | 1340      |
| DOE Lab                                    | 199905817<br>199912972 | 199905816            | 199904691 | 19990899<br>19990895<br>199912965 | 199808894            | 199913055 | 199913057 | 199904887<br>199908904<br>199911154 | 199908981<br>199910261<br>199913059          | 199910262<br>199913056 | 199913053 | 199913054            | 190909090 |
| DOE Field                                  | 94/01581               | 94/00505             | 94/00424  | 94/01381<br>94/00599<br>94/01525  | 94/00591             | 94/01586  | 94/01565  | 94/00430<br>94/00604<br>94/01562    | 94/00675<br>94/00478<br>94/01580<br>94/01580 | 94/00479               | 94/01583  | 94/01584<br>94/01584 | 94470676  |
| Se Se                                      | 0                      | 0                    | 000       | 0000                              | 0                    |           |           | 000                                 | 00   | o                      |           |                      | 6         |
| SO4  | 10.40                  | 10.00                | 3.21      | 3.08<br>2.57<br>5.76              | 2.92                 |           |           | 2.1.89<br>8.00<br>8.00              | 10.20  | 8 %                    |           |                      | 5         |
| residue                                    | 8                      | 8                    | 000       | 0008                              | 0                    |           |           | 000                                 | 200  | 2                      |           |                      | 4         |
| 19. P. | 0.150                  | 0.028                | 0.010     | 0.009                             | 0.000                |           |           | 0.010                               | 0.240  | 0.055                  |           |                      | 0.00      |
| NTO  | 19.7                   | 14.3                 | 011       | 38.00                             | 0.3                  |           |           | 0.4                                 | 4. 4.<br>© ®                                 | 0                      |           |                      | ,         |
| se you                                     | 3.100                  | 2.400                | 0.420     | 0.340                             | 0000                 |           |           | 0.460                               | 1.750  | 0.940                  |           |                      |           |
| mg/ as                                     | 0.016                  | 0.01                 | 0.0000    | 0000                              | 0                    |           |           | 0.00.0                              | 0.0099                                       | 0.0073                 |           |                      | •         |

APPENDIX 5s (cont.). 1999 St. Croix Stream Study Field and Laboratory Data.
Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

| Station 6          | SC-MEAD1  | SC-MEAD4  | SC-HAT2   | SC-BENS1             | SC-PARK1  | SC-GALL1  | SC-COTT2  | SC-WAW1  | SC-WAW3                          | SC-POUT2                            | sc-Gold1  | SC-GOLDZ  | SC-GRLAW  |
|--------------------|-----------|-----------|-----------|----------------------|-----------|---|-----------|--|----------------------------------|-------------------------------------|-----------|-----------|-----------|
| Date               | 99/10/18  | 99/08/Z3  | 99,08/23  | 92/80/86<br>92/80/86 | 98/10/18  | 96/06/23<br>99/07/18<br>99/08/22<br>99/08/72<br>99/09/07      | 70/70/96  | 99x02/18<br>99x07/18<br>99x08/05<br>99x08/72<br>99x08/07     | 99/06/23<br>99/10/18             | 99/06/23<br>99/10/16                | 99,03/29  | 10/10/68  | 99/08/29  |
| ADT                | 1750      | 1430      | 1445      | 0725                 | 750       | 0735<br>1520<br>1930<br>1405<br>1940<br>1240                  | 1900      | 1500<br>1500<br>1360<br>1360<br>1350                         | 0710<br>1330<br>1215             | 0855<br>1325<br>1225                | 1945      | 1915      | 1920      |
| DOE Lab            | 199908983 | 199908982 | 199908984 | 199905189            | 199912829 | 199904690<br>199906590<br>199908696<br>199903684<br>199912964 | 199905818 | 199904887<br>199906589<br>19990781<br>199908995<br>199912961 | 199904888<br>199912962           | 199904889<br>199908897<br>199912963 | 199905620 | 199905619 | 199909314 |
| DOE Field #        | 94/01680  | 94/00679  | 94/00681  | 94/00501             | 94/01573  | 99/00423<br>94/00514<br>94/01382<br>94/01524<br>94/01528      | 94/00507  | 94/00420<br>94/00511<br>94/00595<br>94/01523<br>94/01575     | 94/00421<br>94/00596<br>94/01576 | 94/00422<br>94/00597<br>94/01577    | 94/00509  | 94/00508  | 99/00672  |
| Se logi            | 00        | 0         | 0         | 00                   | 0         | 000080  | 0         | 000000   | 000                              | 000                                 | 00        | 0         | 0         |
| mg/l as            | 5.75      | 11.70     | 13.40     | 8.48                 | 13.10     | 468<br>354<br>424<br>410<br>1320                              | 246       | 25.2<br>20.4<br>20.0<br>4.7.4                                | 322                              | 3.06<br>2.31<br>3.64                | 88        | 2.16      | 1.60      |
| mg/l as<br>residue | 00        | 0         | 0         | 00                   | 8         | 000000  | 0         | 000000   | 000                              | 000                                 | 00        | 0         | 0         |
| age of             | 0.013     | 0.021     | 0.015     | 0.032                | 0.018     | 0.009<br>0.010<br>0.012<br>0.012<br>0.013                     | 0.023     | 0.014<br>0.017<br>0.022<br>0.030<br>0.011                    | 0.0021                           | 0.001                               | 0.007     | 0.006     | 0.010     |
| NTO                | 4.8       | 2         | 5.        | 3.7                  | 8.3       | 0.20  | 5.0       | 000000000000000000000000000000000000000                      | 0.0                              | 1.2                                 | 0.6       | 0.3       | 1.6       |
| mg/ as             | 0.380     | 0.250     | 0000      | 0.530                | 0.470     | 0.280<br>0.280<br>0.400<br>0.310<br>0.460                     | 0.810     | 0.440<br>0.440<br>0.440<br>0.570<br>0.360                    | 0.210                            | 0.270                               | 0.370     | 0.350     | 0.500     |
| ng/ as             | 0.0071    | 0         | 0         | 0.022                | 0.01      | 000000000000000000000000000000000000000                       | 0.006     | 000000   | 000                              | 000                                 | 0.0052    | 0         | 0         |
|                    |           |           |           |                      |           |   |           |  |                                  |                                     |           |           |           |

| Station # Date Time       | SC-JOHN1 99/09/26 1435 | SC-POT1 99/06/29 0655 |          | SC-POT2 98/08/24 0725 | 99/10/17 1910 |  | ESTUARY DATA | SC-EWAW1 99/09/22 1225 | SC-EWAW2 99/09/22 1211 | SC-EWAW3 99/09/22 1155 | SC-EWAW4 99/09/22 1055 | SC-ESCR1 99/09/22 1231 | SC-ESCR2 99/09/22 1242 | SC-ESCR4 99/09/22 1254 | SC-ESCR6 99/09/22 1305 | SC-ESCR8 98/10/27 1030 |  |
|---------------------------|------------------------|-----------------------|----------|-----------------------|---------------|--|--------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|--|
| TOE Lab #                 | 199910946              | 198905188             |          |                       | 199912828     |  |              | yn.                    | -                      | 10                     | 9                      |                        | 2                      | 4                      | 9                      | 199967977              |  |
| DOE Field #               | 94/00484               | 94/00500              | 94/00700 | 1                     | 94/01566      |  |              | 94/00694               | 94/00693               | 94/00692               | 94/00691               | 94/00685               | 94/00696               | 94/00697               | 94/00698               | 94/01590               |  |
| Se lou                    | 0                      | 00                    | 000      |                       | 9 0           |  |              |                        |                        |                        |                        |                        |                        |                        |                        |                        |  |
| SO4<br>Mpl as<br>SO4      | 5.84                   | 4.42                  | 623      |                       | 9.42          |  |              |                        |                        |                        |                        |                        |                        |                        |                        |                        |  |
| TSS<br>mg/l as<br>residue | 0                      | 80                    | 000      |                       | 00            |  |              |                        |                        |                        |                        |                        |                        |                        |                        |                        |  |
| TP-L<br>mg/ as            | 0.017                  | 0.046                 | 0.106    |                       | 0.045         |  |              |                        |                        |                        |                        |                        |                        |                        |                        |                        |  |
| Turb<br>as<br>NTU         | 5.6                    | 62.5                  | 18.0     |                       | 3.1           |  |              |                        |                        |                        |                        |                        |                        |                        |                        |                        |  |
| TKN<br>mg/l as            | 0.430                  | 0.280                 | 0.800    |                       | 0.270         |  |              |                        |                        |                        |                        |                        |                        |                        |                        |                        |  |
| ZN<br>mg/l ass<br>Zn      | 0                      |                       | 0.013    |                       | 0.0064        |  |              |                        |                        |                        |                        |                        |                        |                        |                        |                        |  |

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Fleid and Laboratory Data. Values shown as zero (0) refect no detectible value at the limit of quantification (see test methods at end of table).

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Fleid and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

| Field Usta | Observations      | Drought conditions. Drought conditions. Drought conditions. | Beaver dam immed above marsh above<br>Drought conditions. Scum above beaver dam upstream | Drought conditions. Showers during day | 34mm rain in last 39ms (Canterbury DNR gauge) | 34mm rain in last 39hrs (Canterbury DNR gauge). | Drought conditions.  Drought conditions.  Drought conditions. Rock baskets installed. "B only  Drought conditions.  Rock baskets retrieved - 3 bags out. | Flow 319 cfs @ Vanceboro dam Flow 450 cfs @ Vanceboro dam Rock baskets installed. Flow 623 cfs @ Vanceboro dam. "B taken or Flow 1260 cfs @ VB dam (high for this time of year) Rock baskets retrieved. Flow 660 cfs @ Vanceboro dam. Flow 986cfs @ Vanceboro dam | Flow 319 cfs @ Vanceboro dam Air T 29C. Flow 450 cfs @ Vanceboro dam Air T 29C. Flow 450 cfs @ Vanceboro dam. "B taken or Flow 1260 cfs @ VB dam (high for this time of year) Rock baskets retrieved. Flow 660 cfs @ Vanceboro dam Flow 986cfs @ Vanceboro dam | Flow 986cfs @ Vanceboro dam | Drought conditions.  Drought conditions.  Drought conditions. Rock baskets installed. "B taken only.  Drought conditions.  63.3mm rain in last 96 hrs. |
|------------|-------------------|---|--|--|---|---|--|---|--|-----------------------------|--|
|            | (mg/l)            | 7.2<br>8.4<br>7.4<br>9.9<br>12.6                            | 3.6  | 6.5                                    | 8.0   | 6.5   | 5.9<br>7.6<br>7.0<br>8.0<br>13.3   | 7.7<br>11.1<br>8.1<br>9.2<br>13.2   | 7.5<br>6.6<br>8.3<br>7.9<br>13.4   | 11.7                        | 7.7<br>7.1<br>8.0<br>6.7<br>9.3  |
|            | Water temp<br>(C) | 23.5<br>22.9<br>21.1<br>14.6                                | 24.0   | 25.0                                   | 19.2  | 19.9  | 25.2<br>24.8<br>24.2<br>23.3<br>23.6<br>10.0   | 23.0<br>23.5<br>23.5<br>21.5<br>21.5<br>10.2  | 25.0<br>27.1<br>23.5<br>22.0<br>22.0<br>10.4   | 10.7                        | 22.5<br>28.9<br>24.0<br>15.6   |
|            | Water             | Low<br>Low<br>Low<br>Medium<br>Medium                       | Low  | Low                                    | Low   | Low   | Low<br>Low<br>Low<br>Medium  | Low<br>Low<br>Ved-High<br>Low<br>Medium   | Low<br>Low<br>Med-High<br>Cow  | Medium                      | Low<br>Low<br>Low<br>Low<br>Medium   |
|            | Weather           | Slight cloud<br>Cloud/Sum<br>Sumry<br>Sumry<br>Overcast     | Cloudy, dark<br>Sunny  | Dark                                   | Sunny   | Sunny   | Showers<br>Sunny<br>Cloudy<br>Sunny<br>Cloud/Sun<br>Overcast   | Sunny<br>Sunny<br>Cloudy<br>Sunny<br>Sunny<br>Overcast  | Sunny<br>Sunny<br>Sunny<br>Sunny<br>Sunny  | Cloud/Sun                   | Surmy<br>Surmy<br>Clear<br>Dark<br>Cloudy<br>Hi overcast   |
|            | DOE Field #       | 94/00494<br>94/00549<br>94/00668<br>94/01670                | 94/00497   | 94/00498                               | 94/00512                                      | 94/00520  | 94/00/89<br>94/00/37<br>94/01/37<br>94/01/52<br>94/01/57   | 94/00431<br>94/00553<br>94/01376<br>94/01528<br>94/01583  | 94/00449<br>94/00552<br>94/01375<br>94/00606<br>94/01527<br>94/01564   | 94/01567                    | 94/00429<br>94/00546<br>94/01377<br>94/00592<br>94/01561   |
|            | DOE Lab           | 199905182<br>199906975<br>199911157<br>198912820            | 199905185  | 199905186                              | 199805986                                     | 199905092                                       | 199905187<br>199907772<br>19990891<br>199908989<br>199912821   | 199904898<br>199907774<br>199908833<br>199909898<br>199912822   | 199904911<br>199906587<br>19990773<br>199908892<br>199909897   | 199912824                   | 199904896<br>199907775<br>19990859<br>199910948  |
|            | ADT               | 2200<br>1901<br>2025<br>1630<br>1500                        | 1325   | 1923                                   | 2030  | 2000  | 2305<br>1340<br>1750<br>2045<br>1920<br>1520   | 1205<br>2065<br>1925<br>1825<br>1756<br>1536  | 1300<br>2027<br>1820<br>1745<br>1605   | 1705                        | 1030<br>1750<br>2030<br>2110<br>1815<br>1735   |
|            | Date              | 99/06/28<br>96/07/19<br>99/06/23<br>99/10/17                | 99/06/28   | 99/06/28                               | 98/07/11                                      | 99/07/11  | 99/06/28<br>99/07/19<br>99/08/05<br>99/09/08<br>99/10/17   | 99/06/23<br>99/07/18<br>98/08/22<br>99/09/06  | 99/06/23<br>99/06/23<br>99/06/22<br>99/09/08   | 99010/17                    | 99/06/23<br>99/07/16<br>99/08/17<br>99/09/26<br>99/10/17   |
|            | Station #         | SC-PAL1   | SC-DEAD1   | SC-THIRD1                              | SC-WBEV1                                      | SC-MCAD1  | sc-DiGY1   | SC-RVB  | SC-RWING   | SC-RBEAC                    | SC-CAN2  |

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectble value at the limit of quantification (see test methods at end of table)

|                   |                     |             |              |           |            |                             |            |                               |                             |                               |                             |                               |                             |                            | 0   |                               |                                    |                                |                     |                     |  |                     |   |           |                     |  |           |                             |                             | 0   |                                |  |                               |
|-------------------|---------------------|-------------|--------------|-----------|------------|-----------------------------|------------|-------------------------------|-----------------------------|-------------------------------|-----------------------------|-------------------------------|-----------------------------|----------------------------|---|-------------------------------|------------------------------------|--------------------------------|---------------------|---------------------|--|---------------------|---|-----------|---------------------|--|-----------|-----------------------------|-----------------------------|---|--------------------------------|--|-------------------------------|
| Observations      | Drought canditions. |             |              |           |            | 63.3mm rain in last 96 hrs. |            | Flow 875 cfs @ Woodland gauge | Flow 835 cfs @ Baring gauge | Flow 875 cfs @ Woodland gauge | Flow 835 cfs @ Baring gauge | Flow 875 cfs @ Woodland gauge | Flow 982 cfs @ Baring gauge | Flow 840cfs @ Baring gauge | Rock baskets installed. Flow 834 cfs (2) Woodland gauge. *B taken o | Flow 875 cfs @ Woodland gauge | Flow 1050-1250cfs @ Woodland gauge | Flow 2130 cfs @ Woodland gauge | Drought conditions. | Draught canditions. | Drought conditions. Rock baskets installed. "B taken only. | Drought canditions. | 63.3mm rain in last 56 hrs. Water tea-colored, invel lawing |           | Drought canditions. | 63.3mm rain in last 96 hrs. Water tea-colored, level falling rapidly |           | Flow 962 cfs @ Baring gauge | Flow 840 cfs @ Baring gauge | Rock baskets installed. Flow 834 cfs @ Woodland gauge. 'B taken o | Flow 1892 cfs @ Woodland gauge | Rock baskets retrieved. Flow 1141 cfs @ Woodland gauge | Flow 2130cfs @ Woodland gauge |
| OQ (Mgm)          | 7.0                 | 10.5        | 7.3          | 7.5       | 8.2        | 9.2                         | 11.3       | 6.8                           | 7.2                         | 7.2                           | 7.4                         | 7.4                           | 9                           | 74                         | 0   | 7.5                           |                                    | 11.6                           | 7.9                 | 7.6                 | 8.3  | 0.0                 | 80 °  | 2.1       | 8.4                 | 8.2  | 6.9       | 7.1                         | 8.3                         | 8.5   | 7.0                            | 7.4  | 10.6                          |
| Water temp<br>(C) | 25.9                | 11.0        | 23.0         | 29.9      | 21.3       | 16.9                        | 9.6        | 23.0                          | 25.2                        | 23.1                          | 26.5                        | 23.0                          | 21.5                        | 28.0                       | 26.0  | 23.0                          |                                    | 10.3                           | 19.5                | 31.5                | 26.0   | 20.7                | 15.1  | 0         | 22.2                | 14.7   | 7.52      | 23.5                        | 28.9                        | 25.0  | 21.7                           | 22.8   | 10.3                          |
| Water             | Low                 | Мефит       | Low          | LOW       | Low        | Marchinh                    | Med-High   | Low                           | LOW                         | Low                           | Low                         | row                           | , ow                        | 100                        | MO 1  | Low                           | Medium                             | Med-High                       | Low                 | Low                 | Low  | Low                 | High  | Med-High  | Low                 | Med-High   | Low       | Low                         | Low                         | Low   | Low                            | Low  | Med-High                      |
| Weather           | Clearing/Dusk       | Hi overcast | Sunny        | Sunny     | Overcast   | Cloude                      | Light rain | Sunny                         | Sunny                       | Sunny                         | Sunny                       | Sunny                         | Supply                      | Common                     | Sunny   | Supply                        | Supply                             | Overcast                       | Sumy                | Sunny               | Sunny  | Overcast            | Cloudy  | Overcast  | Cloud/Sun           | Cloudy   | Sunny     | Sunny                       | Sunny                       | Surmy   | Overcast                       | Cloudy   | Overcast                      |
| DOE Field #       | 94/00559            | 94/01569    | 94/00428     | 94/00545  | 94/00603   | 04101560                    | 94/01570   | 94/00615                      | 94/00503                    | 99/00/16                      | 94/00504                    | 94/00617                      | CANDOLAS T                  | 04100644                   | 94/00544  | 94/013/8                      | 04/01647                           | 94/01587                       | 94/00426            | 94/00543            | 94/01379   | 94/00601            | 94/00483  | 94/01571  | 94/00602            | 94/00482   | 94/00502  | 94/00425                    | 94/00554                    | 94/01380  | 94/00600                       | 94/01526   | 94/01572                      |
| DOE Lab #         | 199908657           | 199912828   | 199904895    | 199906595 | 10000001   | 199000000                   | 199912971  | 199909407                     | 100005814                   | 199909408                     | 199905813                   | 199909409                     | POBOLOGO                    | 10000000                   | 199906594   | 19990///6                     | 199909410                          | 199912969                      | 199904893           | 199906593           | 777709961  | 199908901           | 199910945   | 199912970 | 199908902           | 199910944  | 199905815 | 199904892                   | 199906592                   | 199907778   | 199908900                      | 199909896  | 199912968                     |
| Time              | 2030                | 1750        | 0980         | 1730      | 1860       | 222                         | 1715       | 1106                          | 1340                        | 1135                          | 1430                        | 1220                          | 0400                        | 0100                       | 1645  | 1630                          | 1323                               | 1635                           | 0820                | 1630                | 1705   | 1500                | 1645  | 1645      | 1520                | 1700   | 1700      | 830                         | 0630                        | 1730  | 1445                           | 1010   | 1558                          |
| Date              | 99/06/17            | 71/01/66    | PCANIDO      | 99/00/23  | CONTRACTOR | 22/20/20                    | 99/10/18   | 99/06/30                      | 70470400                    | 99/08/30                      | 70/20/066                   | 99/08/30                      | Caracian and                | 33100153                   | 98/07/18  | 99/08/06                      | 38/08/30                           | 99/10/18                       | 990603              | 99/07/18            | 99/08/06   | 99/08/22            | 99/09/26  | 99/10/18  | 99/08/22            | 92/60/66   | 99/07/07  | 200000                      | 99/00/149                   | 99/0/18   | 99/US/US                       | CONDACE  | 99/10/18                      |
| Station #         | SC-CAN1             | SC-KING2    | SC. DC. EAS. | SC-HOLEAS |            |                             |            | SC-RWOOD                      | 04000                       | 25.50                         | C.DRIITI                    |                               |                             | SC-YOLE                    |   |                               |                                    |                                | SC-MOH!             |                     |  |                     |   |           | SC-MOH2             | sc-монз  | sc-00002  | STATE OF                    | 3 - 12 - 12 - 12            |   |                                |  |                               |

APPENDIX 5s (cont.), 1999 St. Croix Stream Study Fleid and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

| Station # | Date   | Time   | DOE Lab #   | DOE Field #  | Weather   | Water                          | Water temp<br>(C)                 | (Mgm)                                   | Observations   |
|-----------|--|--|---|--|---|--------------------------------|-----------------------------------|---|--|
| C-TAN1    | 98/07/07   | 1723   | 199905817<br>199912972                                      | 94/00506   | Sunny<br>Overcast   | Low<br>Medium                  | 10.8                              | 11.8                                    | Drought conditions. Receives some flow from Flakeboard<br>Sewer overflow/bypass active due to recent rain.   |
| SC-TAN2   | 98/10/10/16  | 1535   | 199905816   | 94/00505   | Sumy<br>Overcast  | Low<br>Medium                  | 10.3                              | 5.9                                     | Drought conditions. Flow from Flakeboard and Militown STP Some sit in water. Flow from Flakeboard and Militown STP (bypassir   |
| SC-DEN1   | 99/06/23<br>99/07/18<br>99/08/06<br>99/09/22<br>99/10/18 | 0805<br>1555<br>1850<br>1430<br>0920<br>1330 | 199904891<br>199906591<br>19990899<br>19990895<br>199912965 | 94/00424<br>94/00521<br>94/01381<br>94/01525<br>94/01579 | Sunny<br>Sunny<br>Sunny<br>Overcast<br>Rain<br>Raining/Cold | Low<br>Low<br>High             | 200<br>289<br>285<br>21.5<br>21.7 | 7.1<br>7.8<br>7.8<br>8.3<br>8.0<br>11.5 | Drought conditions. Drought conditions. Drought conditions. Rock baskets installed. "B taken only Drought conditions. Drought conditions. Rock baskets retrieved Water very burbid. Suspect sill from highway construction is entering |
| SC-DEN2   | 99/08/22   | 1645   | 199908884   | 94/00591   | Overcast  | Low<br>Medium                  | 21.2                              | 12.5                                    | Drought conditions.<br>one bact taken only   |
| SC-DEN2A  | 99/10/19   | 1340   | 199913055   | 94/01586   | Sunny   | Medium                         | 7.4                               | 12.5                                    | two bacti taken only<br>Duplicate of lab sample 199913055 (same field #)   |
| SC-DEN2B  | 99/10/19   | 1330   | 199913057   | 94/01585   | Sunny   | Medium                         | 7.5                               | 12.7                                    | one bacti taken only   |
| SC-DENS   | 99/06/23<br>99/09/27<br>99/09/27                         | 1115<br>1625<br>1920                         | 199904897<br>199904897<br>199911154                         | 94/00430<br>94/01562                                     | Sunny<br>Overcast<br>Sunny                                  | Low<br>Low<br>Med-High         | 24.0<br>23.1<br>15.0              | 7.1                                     | Drought conditions.<br>Drought conditions.<br>57.8mm rain 4-5 days previous  |
| SC-BILL1  | 99/08/23<br>89/09/15<br>99/10/19                         | 1415<br>1125<br>1420<br>1420                 | 199908981<br>199910261<br>199913068                         | 94/00675<br>94/0478<br>94/01580<br>94/01580              | Sunny<br>Sunny<br>Sunny<br>Sunny                            | Low<br>Low<br>Medium<br>Medium | 22.0<br>18.0<br>7.3<br>7.3        | 4.1<br>7.0<br>12.0<br>12.0              | Drought conditions. Water somewhat murky, v. little flow Two bacti taken here for >2000 dilution Duplicate of lab sample 199913052 (same field #)  |
| SC-BILL1A | 99/09/15   | 1140   | 199910262<br>199913056                                      | 94/00479   | Sunny   | Low<br>Medium                  | 7.4                               | 12.3                                    | Water somewhat murky, v little flow. Took extra bottle for e. coli dilub f bacti only  |
| SC-BILL18 | 99/10/19   | 1410   | 199913053   | 94/01583   | Sunny   | Medium                         | 7.6                               | 12.1                                    | 2 bacti taken only<br>Duplicate of lab sample 199913053 (same field #)   |
| SC-BILLIC | 99/10/19   | 1415   | 199913054<br>199913061                                      | 94/01584   | Sunny   | Medium                         | 7.5                               | 12.2                                    | 2 bacti taken only<br>Duplicate of lab sample 199913054 (same field #)   |
| SC-BILL2  | 99/08/23   | 1340   | 199908980   | 94/00676   | Sunny   | Low                            | 18.5                              | 7.7                                     | Drought conditions.  |

APPENDIX 5s (cont.). 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detactible value at the limit of quantification (see test methods at end of table)

APPENDIX 5a (cont.), 1999 St. Croix Stream Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

|   | Showers/wind H.Tide-1028<br>Showers/wind H.Tide-1028<br>Showers/wind H.Tide-1028<br>Showers/wind H.Tide-1028<br>Showers/wind H.Tide-1028 | 94/00691 Showers/wind H.Tide-1028<br>94/00695 Showers/wind H.Tide-1028<br>94/00696 Showers/wind H.Tide-1028<br>94/00697 Showers/wind H.Tide-1028<br>94/00699 Showers/wind H.Tide-1028 |  |
|---|--|---|--|
| Showers/wind H.Tide-1028 Showers/wind H.Tide-1028 Showers/wind H.Tide-1028 Showers/wind H.Tide-1028 Showers/wind H.Tide-1028 Showers/wind H.Tide-1028 | Showers/wind H.Tide-1028<br>Showers/wind H.Tide-1028<br>Showers/wind H.Tide-1028<br>Showers/wind H.Tide-1028<br>Showers/wind H.Tide-1028 |   | 94/00695<br>94/00696<br>94/00697<br>94/00698 |

Appendix 5b. 1998 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| SCRECRI Cemose Flowage - Sultion #1 50 70 80 000 84-6454 94-900000 155 137 55 4 0 53 219 70 0 444 152 152 152 152 152 153 153 153 153 153 153 153 153 153 153  | Station #  | Location                     | Date     | Time<br>from ADT | lab #                | Field #     | Sample<br>depth as | Alk-G<br>mg/l as<br>CaCO3 | 2 2 2 | Chi A | 0 % d | Color units | Cond  | 3 100 |  |
|--|------------|------------------------------|----------|------------------|----------------------|-------------|--------------------|---------------------------|-------|-------|-------|-------------|-------|-------|--|
| 96 (70 to 90 (70 | 000000000  | Consess Florence - Ciston    | 98 07 08 | 6060             | 98-05424             | 94-98-00299 |                    | 13.9                      | 5.4   | 10    | 2.19  | 2           | 43.4  | 16.2  |  |
| ## Grand Lake - Station ## 1 200 00 00 00 00 00 00 00 00 00 00 00 00   | SCK-CNOS 1 | Candose riowage - Station    | 96.07.08 | 9160             | 38-05425             | 94-98-00300 |                    | 13.7                      | 23    |       |       | 90          | 43.3  | 16.3  |  |
| East Grand Lake - Station #4 1   |            |                              | 98.07.08 | 0820             | 98-05426             | 94-98-00301 | 3                  |                           |       |       |       |             |       |       |  |
| East Grand Lake - Station #1 120 69-09751 94-90-0001 02 124 4 9 0 162 235 75 443 (129 69-09751 94-90-0001 02 124 4 9 0 162 235 75 443 (129 69-09751 94-90-0001 02 124 5 9 0 162 235 75 443 (129 69-09751 94-90-0001 02 124 5 9 0 162 235 75 443 (129 69-09751 94-90-0001 02 124 5 9 0 162 235 75 444 (129 69-09751 94-90-0001 02 124 5 9 0 162 235 75 75 428 (129 69-09752 94-90-0001 02 124 94 0 162 14   |            |                              | AC 80 90 | 0000             | ORANGROA             | 94-98-00323 | 02                 | 12.9                      | 5.9   |       |       | 75          | 43.5  | 15.1  |  |
| East Grand Lake - Station #1 1120 196-00261 10.2 12.4 4.9 0 15.0 2.3 770 4.32 (deep hole or "Greenland") 1120 196-00262 194-90-0010 10.2 12.7 50 0 12.0 2.3 770 4.32 (deep hole or "Greenland") 1120 196-00262 194-90-0010 10.2 10.2 10.3 1.0 1.1 1.2 1.2 1.4 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0  |            |                              | 98 08 04 | 0925             | 98-06895             | 94-98-00323 | 0.75               | 12.9                      | 5.9   |       | 2.23  | 75          | 43.3  | 15.7  |  |
| East Garact Lake - Sation #1 98 07 06 0940 96 05172 9 49 600000 10.2 127 5.0 0 12.0 231 75 42.8 (cheep hole or Generiand Pt) 98 07 06 092 96 05172 9 49 600000 10.2 10.3 18 0 18 148 1148 1148 1149 1149 1149 1149 11  |            |                              | CH 00 80 | 1120             | 190000               | 94-98-00401 | 0.2                | 12.4                      | 6.9   |       |       | 70          | 43.2  | 15.0  |  |
| Clase   Class   Clas   |            |                              | 96.09.13 | 1128             | 98-09252             | 94-98-00401 | 0.2                | 12.7                      | 5.0   |       |       | 75          | 42.8  | 15.2  |  |
| East Grand Lake - Station #1 98(77 06 0654) 98-65/17 94-98-00076 0.2 10.3 18 0 18 148 0 340 940 940 940 940 940 940 940 940 940 9  |            |                              |          |                  |                      |             |                    |                           |       |       |       |             |       |       |  |
| (deep hole nr Greenland Pt) 990705 (1002 99-05173 44-90-00263 185 100 40 11 40 11 152 5 344  990705 (1000 99-05175 94-99-00264 50 101 40 11 149 5 344  990705 (1001 99-05175 94-99-00264 50 101 40 11 149 5 344  990805 (1001 99-07051 94-99-00264 50 101 40 11 149 5 341  990805 (1001 99-07051 94-99-00264 50 101 40 11 149 5 341  990805 (1001 99-07051 94-99-00264 50 101 40 11 149 5 341  990805 (1001 99-07051 94-99-00264 50 101 40 11 149 5 341  990805 (111 99-07055 94-99-00267 101 101 40 11 149 5 341  990805 (111 99-07055 94-99-00267 101 101 101 101 11 149 5 341  990805 (111 99-07055 94-99-00267 101 101 101 101 11 149 5 341  990805 (111 99-07055 94-99-00267 101 101 101 101 11 149 5 341  990805 (111 99-07055 94-99-00267 101 101 101 101 11 149 5 341  990805 (111 99-07055 94-99-00267 101 101 101 101 101 11 149 5 341  990805 (111 99-07055 94-99-00267 101 101 101 101 101 11 149 5 341  990805 (111 99-07055 94-99-00267 101 101 101 101 101 101 101 101 101 10   | SCR-FGR 1  | East Grand Lake - Station #1 | 98.07.06 | 0840             | 98-05172             | 94-98-00260 | 0.2                | 10.3                      | 3.8   |       |       | 0           | 340   | 9.0   |  |
| Bell   |            | (deep hale nr Greenland Pt)  | 98.07.06 | 0952             | 98-05173             | 94-98-00261 | 9.0                | 000                       | 40    |       |       | 10          | 34.4  | 4.2   |  |
| East Gard Latie - Station #6         98 077 C6         94 90 005         94 90 005         94 90 005         94 90 005         95 00 005         95 00 005         96 077 005         94 90 0034         11 1         43 0 11         149 0 55         95 00 005         95 00 005         96 077 005         94 90 0034         110 1         177 41         41 149         5 5 9 5 9         97 11         95 00 005         96 077 005         140 0 005         110 0 005         96 00 005         110 0 005         96 00 005         110 0 005  |            |                              | 98.07.06 | 1020             | 98-05174             | 94-98-00263 | 26.5               | 10.1                      | 0.0   |       | 1.49  | 0           | 34.8  | 4.3   |  |
| East Grand Lake - Station side   Septicidade   Septicida   |            |                              |          |                  |                      | 31000000    | 0                  | 300                       | 44    |       | *     | vn          | 38.5  | 4.5   |  |
| East Grand Lake - Station #4 98 07 06 1 172 94-96-0034 113   |            |                              | 98.08.05 | 0948             | 98-07051             | 94-98-00345 | 06                 | 2                         |       |       |       |             |       |       |  |
| Sec 03   |            |                              | 96.06.00 | 0957             | 98-07053             | 94-98-00347 | 11.0               | 10.7                      | 4.3   |       | 1.49  | 2           | 37.1  | 4.4   |  |
| East Grand Lake - Station #4         99 0.0 30         1207         94-98-00374         92-90-0374         92-90-0377         96-90-0378         96-90-0378  |            |                              | 98.08.05 | 1001             | 98-07054             | 94-98-00348 | 21.5               | 10.7                      | 4.1   |       | 1.48  | S           | 35.9  | 4     |  |
| East Grand Lake - Station #6  East Grand East Grand East East East Grand East East East East East East East East   |            |                              | 00 00 00 | 1303             | 98-08574             | 94-98-00374 | 0.5                | 10.6                      | 4.2   |       | -     | 0           | 38.0  | 3.8   |  |
| East Grand Lake - Station #6 98 07 06 1122 98-08776 94-98-00376 105 411 144 1149 0 3777 94-98-00377 25 0 105 411 144 1149 0 3877 94-98-00376 100 101 101 101 1149 0 3877 94-98-00376 101 101 101 101 101 101 101 101 101 10  |            |                              | 98 08 30 | 1207             | 98-08575             | 94-98-00375 | 8.6                |                           |       |       |       |             |       |       |  |
| East Grand Lake - Station #6 98 07 06 1122 98-05577 94-98-002264 02 10.0 39 0 111 1.46 5 33.7 (deep hole nr This Tongue) 98 07 06 1129 98-05176 94-98-002265 7.0 10.1 3.9 0 114 1.46 5 33.7 (deep hole nr This Tongue) 98 07 06 1130 98-05177 94-98-002265 7.0 10.1 3.9 0 114 1.47 0 33.9 0 13.9 1 13.9 10.0 10.2 4.1 1.49 5 33.9 10.0 10.1 1.49 5 33.9 10.0 10.1 1.49 10.0 10.2 4.1 1.49 10.0 10.0 10.0 4.1 1.49 10.0 10.0 4.1 1.49 10.0 10.0 4.1 1.49 10.0 10.0  |            |                              | 98 08 30 | 1211             | 98-08576             | 94-98-00376 | 13.0               | 10.7                      | 4.2   |       | 1.48  | 0 (         | 37.0  | 2.5   |  |
| East Grand Lake - Station #4         98 07 06         1122         98-065/76         94-96-00264         0.0         10.1         3.9         0.1.1         1.46         5         33.7           (deep hole nr The Tongue)         98 07 06         1130         98-05/77         94-98-00266         7.0         10.1         3.9         0.14         1.46         5         33.9           98 07 06         1139         98-05/77         94-98-00266         9.0         10.1         3.9         0.14         147         0         33.9           98 07 06         1110         98-07065         94-98-00267         17.0         10.2         4.1         140         5         34.3           98 08 06 05         1110         98-07066         94-98-00267         12.0         10.4         4.4         4.4         147         0         35.9           98 08 06 05         1119         98-07066         94-98-00257         12.0         10.4         4.4         4.4         4.4         1.46         0         35.4           98 08 05 0         1119         96-07066         94-98-0027         12.0         10.4         4.4         4.4         4.4         4.4         4.4         4.4         4.4         4.4  |            |                              | 98.08.30 | 1214             | 98-08577             | 94-98-00377 | 25.0               | 10.5                      | 4.1   |       | 1.53  | 0           | 36.0  | *     |  |
| East Grand Lake - Station #4         98 07 06         1122         99-00177         94-99-00264         02         100         39         0         14         146         9-33           (deep hole nr Tha Torgue)         98 077 06         1130         99-05177         94-90-00267         70         1011         39         0         14         147         0         33.9           96 077 06         1139         99-05179         94-90-00267         170         101         39         0         14         7         0         33.9           96 08 077 06         1119         99-07705         94-90-00267         170         101         4         0         1.47         0         33.9           98 08 06 05         1110         99-07065         94-90-00357         10.4         4         0         1.47         0         33.9           98 08 06 05         1110         99-07065         94-90-00357         12.0         10.4         4         4         1.48         0         35.5           98 08 08 06 05         1119         99-07066         94-90-00376         12.0         10.4         4         4         1.48         0         35.5           98 08 08 08 05         1110 <td></td> <td>97</td> <td></td>   |            |                              |          |                  |                      |             |                    |                           |       |       |       |             |       | 97    |  |
| (deep hole nr The Tongue) 98 07 06 1139 98-05177 94-98-00265 70 101 39 141 149 5 343 943 960 706 1139 98-05179 94-98-00265 70 102 4.1 149 5 343 943 960 706 1149 98-007065 94-98-00365 65 104 40 12 12 150 5 343 943 950 950 950 950 950 950 950 950 950 950   | SCR-FGR 4  | East Grand Lake - Station #4 | 98.07.06 | 1122             | 98-05176             | 94-98-00264 | 0.2                | 10.0                      | 3.9   |       |       | n           | 2     | 0     |  |
| 98 07 06 1139 99-05179 94-99-00257 17 0 102 4.7 1,49 5 34.3  98 07 06 1149 99-05179 94-99-00257 17 0 102 4.7 1,49 5 34.3  98 07 06 1149 99-05179 94-99-00257 17 0 10.4 4.0 1 12 15.0 5 35.9  98 0.08 05 1110 98-07056 94-99-00257 12 0 10.4 4.0 0 12 15.0 5 35.9  98 0.08 05 1111 98-08-0258 94-99-00257 12 0 10.4 4.4 1.49 5 35.9  98 0.08 05 1111 99-08-0279 94-99-00279 86 10.5 4.0 0 2.4 15.2 0 37.5  98 0.08 05 1321 98-08578 94-99-00279 86 10.5 4.0 0 2.4 15.2 0 37.5  98 0.08 05 1321 98-08578 94-99-00279 86 10.5 4.0 0 2.1 144 5 35.1  East Grand Lake - Station #6 98 07 06 1700 94-56-00274 65 10.3 3.9 1.44 5 34.7  98 0.07 06 1700 94-05187 94-99-00277 12.0 11.3 3.9 1.44 5 34.7  98 0.08 04 1447 94-90-00275 12.0 11.3 4.5 0 17 149 5 34.7  98 0.08 04 1447 94-90-00336 55 11.3 4.5 0 17 149 5 37.8  98 0.08 04 1445 94-90-00336 55 10.7 4.2 1.30 5 36.9   |            | (deep hale nr The Tangue)    | 98.07.06 | 1130             | 98-05177             | 94-98-00265 | 0.0                | * 0 *                     | 30    |       |       | 0           | 33.9  | 4.5   |  |
| East Grand Lake - Station #6 - 98 - 077 - 07 - 15 - 15 - 15 - 15 - 15 - 15 - 15 - 1  |            |                              | 98.07.06 | 1149             | 98-05179             | 94-98-00267 | 17.0               | 10.2                      | 4.1   |       | 1.49  | S           | 34.3  | 4.2   |  |
| 98.08.05 11100 98-07056 94-98-00351 120 10.4 4.4 1.149 5 359 98.08.05 11110 99-07056 94-98-00352 120 10.4 4.4 1.149 5 359 98.08.05 11114 99-07056 94-98-00352 120 10.4 4.4 1.149 5 359 98.08.09 1321 98-08578 94-98-00379 86 10.5 4.0 0 2.4 1.52 0 37.7 98.08.09 1321 98-08578 94-98-00379 86 10.5 4.0 0 2.1 1.46 0 37.5 98.08.30 1324 98-08580 94-98-00379 86 10.5 4.0 0 2.1 1.44 5 351 98.08.30 1324 98-08581 94-98-00372 0.2 11.0 4.0 0 2.1 1.44 5 351 98.08.09 1705 1705 98-05184 94-98-00377 6.5 10.3 3.9 1.44 5 34.7 98.07 06 1706 98-05185 94-98-00373 12.0 10.3 3.9 1.44 5 34.7 98.08 07 06 1706 98-05185 94-98-00333 12.0 10.3 3.9 1.44 5 38.0 98.08 04 1447 98-08906 94-98-00335 5.5 10.7 4.2 0 1.7 149 5 37.8 98.08 04 1453 98-08906 94-98-00335 5.5 10.7 4.2 0 2.1 1.49 5 38.9   |            |                              |          |                  |                      |             |                    |                           |       |       | •     | w           | 35.4  | 6.4   |  |
| 98.08.05 1111 99-07057 94-99-00352 120 10.4 4.4 1.3 1.48 0 365 98.08.05 1111 99-07058 94-99-00352 120 10.4 4.4 1.52 0 377 98.08.05 1111 99-07058 94-99-00352 120 10.4 4.4 1.52 0 377 98.08.05 1111 99-07058 94-99-00379 86 10.5 4.0 0 2.1 1.46 0 37.5 98.08.09 1324 96-08560 94-99-00379 86 10.5 4.0 0 2.1 1.51 0 37.6 98.08.09 1324 96-08560 94-99-00372 12.0 10.8 4.2 0 1.51 0 37.6 1.51 0 37.6 98.07.06 1700 98-05184 94-99-00372 12.0 10.3 3.9 0 1.6 1.44 5 35.1 1.44 5 3.44 5 98.07.06 1712 94-90-00375 12.0 10.3 3.9 0 1.44 5 3.44 5 98.08.04 1447 98-08906 94-99-00335 5.6 10.7 4.2 0 1.7 149 5 38.0 98.08.04 1501 94-99-00335 5.6 10.7 4.2 0 1.7 149 5 35.9 98.08.04 1501 94-99-00335 5.6 10.7 4.2 0 2.1 1.50 5 36.9 98.08.04 1501 94-99-00335 5.6 10.7 4.2 0 2.1 150 5 36.9   |            |                              | 98.08.05 | 90:              | 98-07055             | 94-98-00350 | 7 8                | 0.0                       | 40    |       | -     | เก          | 35.9  | 4.5   |  |
| 98.08.09 1119 98-07056 94-98-00353 120 10.4 4.4 1.48 0.365 365 98.08.09 1119 98-07056 94-98-00378 65 10.5 4.0 0 2.4 1.52 0.9 37.7 98.08.09 1321 98-08579 94-98-00379 65 10.5 4.0 0 2.1 1.51 0.0 37.5 98.08.09 1322 98-08580 94-98-00372 0.2 11.0 4.0 0 2.1 1.44 5 35.1 1.51 0.37.6 1.46 5 98.07.06 1700 98-05184 94-98-00272 0.2 11.0 4.0 0 2.1 1.44 5 35.1 1.44 5 34.7 1.3 4.5 0.1 1.44 5 34.7 1.49 5 3.80 0.80 0.6 14.47 98-06905 94-98-00333 0.2 11.3 4.5 0.1 17.4 5 3.44 98-00333 0.2 11.3 4.5 0.1 17.4 5 3.44 98-00333 0.5 11.3 4.5 0.2 11.3 4.5 0.2 11.49 5 3.80 0.80 0.6 14.45 98-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94-00305 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 99-00305 94- |            |                              | 98.08.09 | 0111             | 36-07050<br>08-07067 | 94-98-00031 | 06                 |                           |       |       |       |             |       |       |  |
| East Grand Lake - Station #6         98.08.04         1318         98-08578         94-98-00379         8.6         10.5         4.0         2.4         1.52         0         37.7           98.08.30         1324         98-08579         94-98-00379         8.6         10.5         4.0         2.4         1.55         0         37.5           98.08.30         1324         98-08580         94-98-00378         8.6         10.5         4.0         2.1         1.46         0         37.6           98.08.30         1324         98-08581         94-98-00372         2.5         10.8         4.2         1.51         0         37.6           10 0         1324         98-05184         94-98-00272         0.2         11.0         4.0         0         2.1         1.44         5         35.1           10 0         170 0         98-05186         94-98-00273         12.0         10.3         3.9         1.44         5         34.7           10 0         1712         98-05186         94-98-00273         12.0         10.3         3.9         1.46         5         34.4           10 0         10 0         14.4         58-08006         14.4         98-08006  |            |                              | 96.08.05 | 1119             | 96-07058             | 94-98-00353 | 12.0               | 10.4                      | 4.4   |       | 1.48  | 0           | 36.5  | 4.2   |  |
| 98.08.30 1321 98-06579 86 10.5 40 1.46 0 37.5 98.08.09.0 1321 98-06579 86 10.5 10.5 40 2.1 1.46 0 37.5 98.08.30 1324 98-06580 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.   |            |                              | 90 00 00 |                  | OB CRETE             | BA 08 00778 | 0.0                | 10.5                      | 4.3   |       | -     | 0           | 37.7  | 3.9   |  |
| East Grand Lake - Station #6 98.07.06 1655 98-05184 94-98-00272 0.2 11.0 4.0 0.21 1.44 5 351 (deep hole nr Caribou Pt) 98.07.06 1700 98-05185 94-98-00277 0.2 11.0 4.0 0.21 1.44 5 351 (deep hole nr Caribou Pt) 98.07.06 1705 98-05185 94-98-00277 0.2 11.3 45 0.16 1.44 5 34.7 98.06.04 1447 98-06905 94-98-00333 0.2 11.3 45 0.17 149 5 38.0 99.06.04 1453 98-06905 94-98-00335 5.6 10.7 4.2 0.21 1.50 5 36.9 36.9 94-98-00335 5.6 10.7 4.2 0.21 1.50 5 36.9 36.9   |            |                              | 98.08.30 | 1321             | 98-08579             | 94-98-00379 | 9.0                | 10.5                      | 4.0   |       |       | 0           | 37.5  | 3.8   |  |
| East Grand Lake - Station #6 98.07.06 1625 98-05184 94-98-00272 0.2 11.0 4.0 0.21 1.44 5 35.1 (deep hole m Caribou Pt) 98.07.06 1700 98-05185 94-98-00272 0.2 11.0 4.0 0.21 1.44 5 34.7 98.07.06 17705 98-05185 94-98-00273 6.0 10.3 39 1.46 5 34.4 98.07.06 17705 98-05187 94-98-00273 12.0 10.3 3.9 1.46 5 34.4 98.08.04 14.7 98-05905 94-98-00333 0.2 11.3 4.5 0.17 14.9 5 37.8 98.08.04 14.55 98-05905 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 36.9 94-98-00335 5.5 10.7 4.2 1.50 5 36.9 36.9   |            |                              | 98 08 30 | 1324             | 98-08580             | 94-98-00380 | 13.0               |                           |       |       | •     | •           | 9 400 | 9.0   |  |
| East Grand Lake - Station #6 98.07.06 1665 98-05184 94-98-00272 0.2 11.0 4.0 0.2.1 1.44 5 35.1 (deep hole nr Caribou Pt) 98.07.06 1700 98-05185 94-98-00274 6.5 10.3 3.9 1.44 5 34.7 98.07.06 1702 98-05187 94-98-00275 12.0 10.3 3.9 1.44 5 34.4 98.07.06 1712 98-05187 94-98-00275 12.0 10.3 3.9 1.46 5 34.4 98.08.04 1447 98-06906 94-98-00335 5.6 11.3 4.5 0.17 149 5 38.0 98.08.04 1455 98-06906 94-98-00335 5.6 10.7 4.2 0.2.1 150 5 36.9 36.9   |            |                              | 98.06.30 | 1328             | 98-08581             | 94-96-00381 | 25.0               | 10.8                      | 4.2   |       | 1.01  | 0           | 97.0  | 9     |  |
| Cleep hole m* Caribou Pt   98.07.06   1700   98-05185   94-98-000773   6.0   10.3   3.9   0.16   1.44   5   34.7   | 0          | series   bearing and         | 98 07 06 | 1665             | 98-05184             | 94-98-00272 | 0.5                | 11.0                      | 4.0   |       | -     | 90          | 35.1  | 5.4   |  |
| 98.07.06 1706 98-05186 94-98-00274 815 103 3.9 1.44 5 3.44 98.07.06 1712 98-05187 94-98-00275 12.0 10.3 3.9 1.46 5 3.44 98.07.06 1712 98-05187 94-98-00233 0.2 11.3 4.5 0.17 149 5 38.0 98.08.04 1453 98-05906 94-98-00334 3.7 11.3 4.5 0.27 148 5 37.8 98.08.04 1456 98-05906 94-98-00335 5.6 10.7 4.2 0.27 150 5 36.9 98.08.04 1501 98-05907 94-98-00336 6.5 10.7 4.2 0.27 150 5 36.9  | טראירוטי   | Case Inde or Carinos Pt      | 98 07 06 | 1700             | 98-05185             | 94-98-00273 |                    |                           |       |       | ,     |             | 20.7  | 4.6   |  |
| 1712 98-05187 94-96-00275 12.0 10.3 3.9 1.46 5 34.8 1447 98-05904 94-96-00334 3.7 11.3 4.5 0 1.7 14.9 5 38.0 1453 98-05906 94-96-00336 5.6 10.7 4.2 0 2.1 150 5 36.9 1501 98-05907 94-98-00336 6.5 10.7 4.2 0 2.1 150 5 36.9   |            | (deep line in carpon in      | 98 07 06 | 1706             | 98-05186             | 94-98-00274 |                    | 103                       | 3.9   |       | 7     | 0           | 1     | 9 4   |  |
| 1447 98-08904 94-98-00334 37 11.3 45 0 17 149 5 380<br>1453 98-06905 94-98-00334 37 11.3 45 0 27 148 5 378<br>1456 98-06906 94-98-00335 5.6 10.7 4.2 150 5 369   |            |                              | 98.07.06 | 1712             | 98-05187             | 94-98-00275 |                    | 103                       | 3.9   |       | 40    | 0           | 34.4  | 9     |  |
| 1447 99-06906 94-98-00334 3.7 11.3 4.5 0.21 1.48 5 37.8 1456 96-06906 94-98-00335 5.6 10.7 4.2 0.21 1.50 5 36.9 1501 98-06907 94-98-00336 6.5 10.7 4.2   |            |                              |          |                  |                      | 04 00 00033 |                    | 6. 20                     | 4     | 0     | 1.49  | 40          | 380   | 5.4   |  |
| 1466 98-06906 94-98-00336 5.6 10.7 4.2 0 21 150 5 36.9 150 150 150 150 150 150 150 150 150 150   |            |                              | 98 GB:04 | 1447             | 90-06904             | 94-98-00333 |                    | 11.3                      | 4.5   |       | q=    | en          | 37.8  | 4.0   |  |
| 1501 98-06907 94-98-00336 6.5 10.7 4.2 150 5 36.9  |            |                              | 36.06.04 | 1456             | 90090-90             |             |                    |                           |       |       |       | ,           |       | •     |  |
|  |            |                              | 96 06 04 | 1501             | 28-06907             |             |                    | 10.7                      | 4.2   |       | 8     | 0           | 26.5  |       |  |

Appendix Sb (cont.), 1998 St. Croix Lakes Study Field and Laboratory Data.
Values shown as zero (U) refect no detectble value at the limit of quantification (see test methods at end of table).

| SCRATTI I North Lake - Stellon #6 98 00 051 1135 99-09910 94-98-00290 02 1112 444 0 2 159 119 149 149 149 149 149 149 149 149 14   | Station # | Location                     | Date                 | Time<br>from ADT | 200                  | Field #     | depth as | CaCO3 | 2 2    | Che se se | 2 8 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | Color units | Cond | 100 mg/l |
|--|-----------|------------------------------|----------------------|------------------|----------------------|-------------|----------|-------|--------|-----------|---|-------------|------|----------|
| 99 00 00 1134 99-0016 94-00-0039 62 113 4.4 0 2 167 10 378 4 4 (deep hule, seat ord) 99 00 00 1134 99-0016 94-00-0039 62 113 4.4 0 2 2 157 10 378 4 9 9 00 00 1134 99-0019 94-00-0039 2 2 136 52 0 2 7 114 20 30 30 0 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  | CR-EGR 6  | East Grand Lake - Station #6 | 98.09.03             | 128              | 96-08916             | 94-96-00390 | 3.6      | 11.2  | 4.4    |           | 6   | 0.01        | 38.3 |          |
| New   Lake - Station #1   96 07 00   1604   99-05191   94-99-00281   94-99-00281   97-99-99   97-99-99   97-99-99   97-99-99   97-99-99   98-99-99   98-99-90281   94-99-00281   94-99   |           |                              | 98.09.03             | 1134             | 98-08918<br>98-08919 | 94-96-00393 | 7.0      | 11.3  | 4.4    |           |   | 01          | 37.8 |          |
| Sept 70 (New place easi errol)    | CR-NTH 1  | North Lake - Station #1      | 96.07.06             | 1804             | 98-05191             | 94-98-00279 | 0.2      | 13.2  | 9,4    |           |   | 8           |      | 9.7      |
| Section   1915   Sect   |           | (deep hale, east end)        | 98.07.06             | 1812             | 98-05192             | 94-98-00280 | 2.7      |       |        |           |   |             |      |          |
| 98.00 G/4 (1609 98-00912 94-86-00341 0.2 (15.2 G/4 0.2 5 1.22 A/4 0.2 6 1.2 6  |           |                              | 98.07.08             | 1819             | 98-05193             | 94-98-00281 | 3.5      | 13.6  | 10 KI  |           | 4.1                                       | 8 8         | 38.6 | 60 K     |
| Section   Sect   |           |                              | 00 00                | 1000             | CB 0404.3            | 64 CB 00044 | 6        |       |        |           |   | 8           |      |          |
| 99 00 00 1 122 99-0951 9-49-00344 2 6 15.3 6 0 0 3 6 124 2 9 0 447 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9   |           |                              | 20.80                | 1612             | 98-06913             | 94-96-00342 | 20       | 15.3  | 9 6    |           | -   | 8 8         | 44.0 |          |
| 98 00 00 1722 98 -00954 30 153 60 124 03 0 173 99 94 -00954 30 153 60 174 30 447 9 9 90 00 1722 98 -00952 94 -00959 20 164 63 0 2 51 134 40 46 99 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  |           |                              | 98.08.04             | 1615             | 98-06914             | 94-98-00343 | 2.6      |       | ,      |           |   | }           |      |          |
| 98 00 00 1 1222 99 08924 84-96 00299 0 164 6 5 0 5 1 1.34 40 46 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  |           |                              | 98.08.04             | 1618             | 96-06915             | 94-98-00344 | 3.0      | 15.3  | 6.0    |           | 1.24                                      | 8           | 44.7 |          |
| Self Lake - Station #2   Self 70   |           |                              | 98.09.03             | 1232             | 96-08924             | 94-98-0038  | 0.2      | 16.4  | 6.3    |           | -   | 40          | 46.9 | 9.6      |
| Shelf Lake - Station #2   Sec 07 OF   1730   Set-06508   Set-90-00276   Set 07 OF   Set    |           |                              | 98.09.03             | 1238             | 98-08925             | 94-96-00399 | 2.0      | 16.3  | 6.3    |           | 4-  | 40          | 47.1 | 9.2      |
| Shiff Lake - Station #2   98.07 OK   1730   99-05/196   94-99-00277   3.2   16.1   6.0   0.32   124   40   40.5   6.9    |           |                              | 98.09.03             | 1242             | 98-08926             | 94-98-00400 | 2.9      | 16.4  | 6.3    | wi)       | -   | 9           | 46.9 | 6        |
| Shiff Lake - Station #1   98 (07) 05   1745   99 -05169   94-99 -00277   312   145   54   0 2 5   1.18   40   405   50   405   40   | CR-NTH 2  | North Lake - Station #2      | 98.07.06             | 1730             | 98-05188             | 94-98-00276 | 0.2      | 16.1  | 60     | (1)       |   | 40          | 43.4 | ST.      |
| SM-07/06   1740   98-05190   94-98-00237   0.2   16   61   0.2   1.26   30   460   96  |           | (deep hale, west end)        | 96.07.06             | 1745             | 98-05189             | 94-98-00277 | 3.2      | 14.5  | 5.4    | 2         |   | 9           | 40.5 | 9.6      |
| 98.08.04 1541 99-09908 94-99-00339 25 162 62 126 30 46.0 99.08.04 1447 99-09909 94-99-00339 25 162 62 126 30 46.0 99.08.04 1447 99-09901 1211 94-99-00339 25 16.7 6.5 125 126 30 46.1 99.09.03 1211 94-99-00394 02 16.7 6.5 13.4 40 47.9 99.09.03 1214 99-09922 94-99-00394 02 16.7 6.5 13.4 40 47.9 99.09.03 1214 99-09922 94-99-00395 25 16.7 6.5 13.4 40 47.9 99.09.03 1214 99-09922 94-99-00397 4.0 16.7 6.5 17.7 6.5 17.8 9.0 46.0 99.09.03 1214 99-09922 94-99-00397 4.0 16.7 6.5 17.7 6.5 17.8 9.0 46.0 99.09.03 1214 99-09922 94-99-00397 1.0 16.7 6.5 17.7 6.5 17.7 5.0 17.0 14.0 14.0 14.9 14.9 14.9 14.0 16.7 16.7 6.5 17.7  |           |                              | 98.07.06             | 1749             | 98-05190             | 94-98-00278 | 5.0      | 14.2  | 5.2    |           | 1.18                                      | 8           | 40.0 | 8.5      |
| 98.00 GA 144 98-00399 94-98-00349 25 16.2 6.2 126 30 46.0 98.00 GA 1447 98-00911 94-98-00339 25 16.1 6.2 0 2.5 126 30 46.0 98.00 GA 1214 98-00921 94-98-00394 0.2 16.8 6.7 0 6.5 134 40 47.9 98.00 GA 1214 98-00921 94-98-00395 25 16.7 6.5 0 4.4 136 40 47.9 98.00 GA 1214 98-00921 94-98-00395 25 16.7 6.5 0 4.4 136 40 47.9 98.00 GA 1214 98-00921 94-98-00397 4.0 16.7 6.5 0 4.4 136 40 47.9 98.00 GA 1214 98-00922 94-98-00397 4.0 16.7 6.5 0 4.4 136 40 47.9 98.00 GA 1214 98-00923 94-98-00397 7.8 6.5 17.7 6.5 17.7 9.0 48.0 98.00 GA 1457 98-06329 94-98-00395 10.5 6.9 14.7 6.2 17.7 5 5 31.0 98.00 GA 1457 98-06329 94-98-00397 7.8 6.7 17.7 6.2 17.7 5 5 31.0 98.00 GA 1457 98-06339 94-98-00397 7.8 6.7 17.7 6.2 17.7 6.3 17.7 6.7 14.7 98-06339 94-98-00397 10.5 8.9 1.0 17.8 6.7 17.8 17.8 17.8 17.8 17.8 17.8 17.8 17  |           |                              | 98.08.04             | 1541             | 90690-96             | 94-98-00337 | 0.2      | 16    | 6.1    | ci        |   | 8           | 45.7 | 8.8      |
| 99.08.04 1447 99-06910 94-99-00339 3.6 16.1 6.2 2.5 1.27 3.0 46.1 99.08.04 1550 99-00391 94-99-00340 4.0 16.1 6.2 1.27 3.0 46.1 99.08.04 1550 99-00391 94-99-00394 4.0 16.1 6.2 1.34 4.0 47.9 99.09.03 1214 99-09329 94-99-00395 2.5 16.7 6.5 1.34 4.0 47.9 190.09.03 1219 99-09922 94-99-00395 2.5 16.7 6.5 1.4 0 1.36 4.0 47.9 190.09.03 1219 99-09522 94-99-00395 10.5 10.5 10.5 10.5 11.75 5 31.0 10.5 10.0 10.5 11.75 5 11.0 10.5 10.5 10.5 10.5 10.5 11.75 5 11.0 10.5 10.5 10.5 10.5 10.5 10.5 1  |           |                              | 96.08.04             | 1544             | 60690-96             | 94-96-00338 | 2.5      | 16.2  | 6.2    |           |   | 8           | 46.0 | 0.6      |
| SMIT Lake - Station #1 990.03 1211 98-04920 94-98-00394 0.2 16.8 6.7 0 6.5 13.4 40 47.9 98.09 0.3 1214 98-04927 94-98-00395 2.5 16.7 6.5 13.4 40 47.9 98.09 0.3 1214 98-04927 94-98-00395 2.5 16.7 6.5 0 44 13.6 40 48.0 98.09 0.3 1214 98-04927 94-98-00397 4.0 16.7 6.5 0 44 13.6 40 47.9 98.09 0.3 1214 98-04927 94-98-00397 4.0 16.7 6.5 14.4 13.6 40 47.9 98.07 0.7 14.2 98-04923 94-98-00295 0.2 8.5 3.4 0 0.2 1.78 0 32.5 98.07 0.7 14.0 98-05329 94-98-00296 10.5 8.9 14.0 0.2 1.78 0 0 33.2 98.07 0.7 14.0 98-05331 94-98-00296 10.5 8.9 14.0 0.9 1.78 0 0 33.2 98.08 0.5 1550 98-07064 94-98-00399 12.5 8.9 14.0 0.9 1.78 0 0 33.2 98.08 0.5 1550 98-07064 94-98-00399 10.5 8.9 19.0 1.78 0 0 33.2 98.08 0.5 1550 98-07064 94-98-00399 10.5 9.1 10.5 9.1 178 5 98-07067 94-98-00399 10.5 9.1 10.5 9.1 178 5 98-07067 94-98-00399 10.5 9.1 10.5 9.1 10.5 9.1 10.5 9.1 10.5 98.08 0.5 1550 98-07064 94-98-00399 10.5 9.1 10.5 9.1 10.5 9.1 10.5 98.08 0.5 1550 98-07067 94-98-00399 174 0.5 9.2 9.5 9.5 9.5 9.5 9.5 9.5 9.5 9.5 9.5 9.5  |           |                              | 98.08.04             | 1447             | 98-06910             | 94-98-00339 | 3.6      |       |        | 2         | ,   | 1           |      |          |
| 96.09.03 1211 99-09920 94-99-00394 0.2 16.8 6.7 0 6.5 13.4 40 47.9 96.09.03 1214 99-09922 94-99-00396 3.6 16.7 6.5 0 4.4 13.6 40 48.0 96.09.03 1216 99-09922 94-99-00397 4.0 16.7 6.5 0 4.4 13.6 40 47.9 96.09.03 1219 98-09922 94-99-00397 4.0 16.7 6.5 0 4.4 13.5 40 47.9 96.09.03 1219 98-09922 94-99-00397 4.0 16.7 6.5 3.4 0 0.2 1,78 0 0.32.5 96.09.07 07 1440 99-05329 94-99-00296 6.0 8.67 3.4 0 0.2 1,78 0 0.32.5 96.07 07 1440 99-05329 94-99-00296 10.5 8.91 3.4 0 0.2 1,77 5 5 31.0 96.08.05 1505 98-07063 94-99-00299 10.5 8.96 3.4 0 0.9 1,78 0 0.33.2 98.08.05 1505 98-07063 94-99-00299 10.5 8.96 3.4 0 0.9 1,78 0 0.33.2 98.08.05 1505 98-07065 94-99-00299 10.5 8.96 3.4 0 0.9 1,78 0 0.33.2 98.08.05 1505 98-07065 94-99-00299 10.5 8.96 3.4 0 0.9 1,78 0 0.33.2 98.08.05 1505 98-07065 94-99-00299 7.5 9.19 3.6 0.10 1,78 5 33.5 99.08.05 1505 98-07065 94-99-00398 7.4 0.5 1.8 1.9 1.9 1 10 33.8 99.09.09 0.0 0.0  |           |                              | 28.08.04<br>28.08.04 | 1560             | 98-08911             | 94-98-00340 | 4.0      | 16.1  | 6.2    |           | 1.27                                      | 8           | 46.1 | 80       |
| 98.09 03 1214 98-08921 94-98-00395 25 16.7 6.5 1.36 40 48.0 98.09 03 1216 98-08922 94-98-00395 40 16.7 6.5 1.36 40 47.9 98.09 03 1216 98-08922 94-98-00395 40 16.7 6.5 1.36 40 47.9 98.09 03 1219 98-08922 94-98-00395 6.0 867 34 0 0.2 1.78 0 32.5 98.07 07 1457 98-05329 94-98-00296 6.0 867 34 0 0.2 1.72 5 31.0 98.07 07 1450 98-05329 94-98-00296 10.5 8.91 3.4 0 0.2 1.72 5 31.0 98.07 07 1450 98-05330 94-98-00296 10.5 8.91 3.4 0 0.9 1.78 0 33.2 98.08 0.5 1505 98-07064 94-98-00397 0.2 8.96 34 0 0.9 1.78 0 33.1 98.08 0.5 1515 98-07064 94-98-00396 10.5 8.97 3.6 0 1.0 1.78 5 33.5 98.08 0.5 1515 98-07064 94-98-00396 10.5 9.19 3.6 0 1.0 1.78 5 33.5 98.08 0.5 1515 98-07064 94-98-00396 10.5 9.19 3.6 0 1.8 1.91 10 33.8 98.08 0.0 0.9 1.78 99.08 0.0 0.9 1.78 99.08 0.0 0.9 1.78 99.09 0.0 0.9 1.78 99.00 0.0 0.9 1.78 99.00 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0  |           |                              | 98.09.03             | 1211             | 98-08920             | 94-98-00394 | 0.2      | 16.8  | 6.7    | 9         | -   | 40          | 47.9 | 9.2      |
| SMilf Lake - Station #1 98.07 07 1423 98-06329 94-98-00297 4.0 16.7 6.5 1.35 4.0 47.9  SMilf Lake - Station #1 98.07 07 1423 98-06329 94-98-00296 6.0 867 3.4 0 0.2 1.78 0 32.5  98.07 07 1440 98-06329 94-98-00296 6.0 867 3.4 0 0.2 1.72 5 31.0  98.07 07 1440 98-06329 94-98-00296 10.5 8.91 3.4 0 0.2 1.72 5 31.2  98.08 0.5 1502 98-07063 94-98-00299 10.5 8.91 3.4 0 0.9 1.78 0 33.1  98.08 0.5 1502 98-07064 94-98-00399 0.2 8.97 3.6 0 1.0 1.78 0 33.1  98.08 0.5 1515 98-07065 94-98-00399 0.2 8.97 3.6 0 1.0 1.78 0 33.1  98.08 0.5 1515 98-07065 94-98-00396 7.5 8.97 3.6 0 1.0 1.78 5 33.5  98.08 0.5 1515 98-07067 94-98-00396 7.5 9.19 3.6 0 1.8 1.91 10 33.8  98.09 0.0 0912 98-09913 94-98-00397 7.4 0 0.6 1.8 1.91 10 33.8  98.09 0.0 0919 99-09914 94-98-00397 7.4 0.6 0.6 0.7 1.8 1.91 10 33.8  |           |                              | SS 00.03             | 1214             | 98-08927             | 94-98-00395 | 3.5      | 16.7  | e<br>E |           |   | 9           | 48.0 | 0.6      |
| Shiff Lake - Station #1         98.07 07         1423         98-053228         94-98-00296         0.2         8.56         3.4         0         0.2         1.78         0         32.5           98.07.07         1457         98-05329         94-98-00296         6.0         8.67         3.4         0         2.7         1.72         \$         31.0           98.07.07         1440         98-05330         94-98-00296         10.5         8.91         3.4         0         2.7         1.75         \$         31.2           98.08.05         1502         98-07067         1450         94-98-00297         7.5         8.96         3.4         0         1.78         0         33.2           98.08.05         1502         98-07064         94-98-00359         0.2         8.96         3.4         0         1.78         0         33.2           98.08.05         1510         98-07064         94-98-00359         0.2         8.96         3.4         0         1.78         0         33.2           99.08.05         1552         98-07067         94-98-00369         7.5         9.19         3.6         1.78         0         1.78         0         33.5           <  |           |                              | 98.09.03             | 1219             | 98-08923             | 94-96-00397 | 4.0      | 16.7  | 6.5    |           | -   | 9           | 47.9 | 0.6      |
| 1457         98-05320         94-98-00296         6.0         8.67         3.4         1.72         5         31.0           1440         98-05330         94-98-00297         7.8         9         1.75         5         31.2           1450         98-05330         94-98-00299         10.5         9.02         3.4         0         1.75         5         31.2           1502         98-07063         94-98-00359         10.2         9.02         3.4         0         1.78         0         33.2           1510         98-07065         94-98-00359         0.2         8.97         3.6         0.70         1.78         0         33.1           1510         98-07065         94-98-00359         0.2         8.97         3.6         0.2         1.78         0         33.2           1515         98-07066         94-98-00356         1.0         3.16         1.78         5         33.5           1526         98-07067         94-98-00360         7.5         9.19         3.6         1.78         1.91         10         33.8           0912         99-09913         94-98-00396         0.2         9.2         3.9         0         1.8 <t< td=""><td>R-SKIF 1</td><td></td><td>70.70.06</td><td>1423</td><td>96-05328</td><td>94-96-00295</td><td>0.2</td><td>8.56</td><td>3.4</td><td></td><td></td><td>0</td><td>32.5</td><td>3.6</td></t<>   | R-SKIF 1  |                              | 70.70.06             | 1423             | 96-05328             | 94-96-00295 | 0.2      | 8.56  | 3.4    |           |   | 0           | 32.5 | 3.6      |
| 1440         98-05330         94-30-00297         7.8         9.2         1.75         5         31.2           1450         98-05331         94-90-00296         10.5         8.91         3.4         0.22         1.78         5         31.2           1502         98-07063         94-90-00396         10.2         8.96         3.4         0.10         1.78         0         33.2           1505         98-07064         94-90-00396         0.2         8.97         3.6         0.9         1.78         0         33.1           1515         98-07066         94-90-00369         0.2         8.97         3.6         0.2         1.78         0         33.2           1526         98-07066         94-90-00361         10.5         9.19         3.6         0.2         1.78         5         33.2           1526         98-07067         94-90-00361         10.5         9.19         3.6         0.2         1.78         5         33.5           0912         99-09912         94-90-00396         0.2         9.26         3.9         0.18         1.91         10         33.6           093         99-09913         94-90-00397         5.0         9.26   |           |                              | 98.07.07             | 1437             | 98-06329             | 94-96-00296 | 0.0      | 8.67  | 4.60   |           |   | w           | 31.0 | 3.8      |
| 1502   98-07063   94-96-00357   0.2   9.02   3.6   0.10   1.78   0   33.2   1505   98-07064   94-96-00359   0.2   8.96   3.4   0.09   1.78   0   33.1   1515   98-07066   94-96-00369   0.2   8.97   3.6   0.2   1.75   0   33.1   1515   98-07066   94-96-00369   1.05   9.19   3.6   0.2   1.78   0   33.1   1526   98-07067   94-96-00361   10.5   9.19   3.6   0.2   1.78   5   33.5   0   33.1   0.0912   94-98-00398   0.2   9.2   3.8   0.1.8   1.91   10   33.8   0.0912   94-96-00398   0.4   |           |                              | 98.07.07             | 1440             | 98-05330             | 94-96-00297 | 7.8      | 000   | 9.6    |           |   | u           | 0    | **       |
| 1502 98-07063 94-96-00357 0.2 9.02 3.6 0 1.0 1.78 0 33.2 1505 98-07064 94-96-00359 0.2 8.96 3.4 0 0.9 1.78 0 33.1 1515 98-07066 94-96-00359 0.2 8.97 3.6 0 2.0 1.78 0 33.2 1515 98-07066 94-96-00359 1.0 5 9.19 3.6 0 2.0 1.78 5 33.2 1526 98-07067 94-96-00361 10.5 9.19 3.6 0 1.8 1.91 10 33.8 0 1.9 99-09913 94-96-00398 0.2 9.2 3.8 0 1.8 1.91 10 33.8 0 1.9 99-09913 94-96-00398 7.4 0 1.8 1.96 10 33.8 0 1.9 0.09 10 3.3 0 1.9 0.09  |           |                              | 10.00                | 3                | 30-00331             | 34-30-0773  | 2        | 0.9   | r<br>i |           | 67.7                                      | n           | 7.10 | 2.0      |
| 1505 98-07064 94-96-00359 0.2 8.96 3.4 0.0.9 1778 0 33.1 1515 98-07065 94-96-00359 0.2 8.97 3.6 0 2.0 178 0 33.2 1515 98-07066 94-96-00359 1.0.5 9.19 3.6 0.2 1.78 5 33.2 1526 98-07087 94-98-00361 10.5 9.19 3.6 0.1.8 1.91 10 33.8 0.1.8 99-09913 94-98-00398 0.2 9.2 3.8 0.1.8 1.91 10 33.8 0.99 99-09913 94-98-00398 7.4 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1   |           |                              | 38.08.05             | 1502             | 98-07063             | 94-98-00357 | 0.2      | 9.02  | 3.6    |           |   | 0           | 33.2 | 3.2      |
| 1516 96-07065 94-96-0039 6.2 8.97 3.6 Q 2.0 175 0 33.2 1516 96-07066 94-96-0039 6.2 8.97 3.6 Q 2.0 178 5 33.5 152 96-07066 94-96-00396 10.5 9.19 3.6 Q 1.8 1.91 10 33.8 0 0912 96-09913 94-96-00398 5.0 9.26 3.9 Q 2.1 1.86 10 33.5 0 093.6 94-96-00398 7.4 9.2 0 0.2 1 1.86 10 33.5 0 093.6 0.2 0 96-09913 94-96-00398 7.4 0 0.16 1.9 Q 2.1 1.86 10 33.5 0 093.6 0.2 0 96-09913 94-96-00398 7.4 0 0.16 1.9 Q 2.1 1.86 10 33.5 0 093.6 0.2 0 0.2 |           |                              | 98.08.05             | 1505             | 98-07064             | 94-98-00358 | 0.5      | 96.6  | 3.4    |           |   | 0           | 33.1 | 3.2      |
| 1526 98-07067 94-98-00361 10.5 9.19 3.6 1.78 5 33.5 0912 98-07067 94-98-00366 0.2 9.2 3.8 0 1.8 1.91 10 33.8 0919 94-08913 94-98-00396 7.4 9.2 3.8 0 2.1 1.86 10 33.5 0920 98-09914 94-98-00398 7.4 9.2 9.2 9.2 9.2 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3 9.3  |           |                              | 98.08.05             | 1515             | 98-07068             | 94-98-00359 | 7.2      | (B.B) | 0      |           |   | 0           | 33.2 | 3.2      |
| 0912 99-08912 94-98-00398 0.2 9.2 3.8 G 1.8 1.91 10 33.8 3.8 0.91.8 190 0919 99-09913 94-98-00398 7.4 9.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9  |           |                              | 98.08.05             | 1526             | 98-07067             | 94-96-00361 | 10.5     | 9.19  | 99     |           |   | wn          | 33.5 | 3.2      |
| 0619 94-08913 94-98-00387 5.0 9.26 3.9 1.86 10 33.5 0920 98-0998 7.4 0.2 0.2 1 1.87 K 33.0   |           |                              | 98.09.03             | 0912             | 98-08912             | 94-98-00386 | 0.2      | 9.2   | 60     |           |   | 10          | 33.8 | 3.1      |
| 0920 98-08914 94-98-00388 74 Q 2.1   |           |                              | 98.09.03             | 0819             | 96-08913             | 94-98-00387 | 0.0      | 9.26  |        |           |   | 10          | 33.5 | 3.1      |
|  |           |                              | 98.09.03             | 0880             | 98-08914             | 94-98-00388 | 7.4      | 60    | 0      |           |   |             | 000  |          |

Appendix 5b (cont.), 1998. St. Croix Lakes Study Fleid and Laboratory Data.
Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| SCR-SPED I Speaker Lake - Station #1   | Station #  | Location                  | Date      | Time<br>from ADT | de.                  | Field #     | Sample depth as | Alk-G<br>mg/l as<br>CaCO3 | 0 % 5  | CNA | 2 80 | Color units | - 1   | Cond |
|--|------------|---------------------------|-----------|------------------|----------------------|-------------|-----------------|---------------------------|--------|-----|------|-------------|-------|------|
| Speciment City Lidgs   Septiminary   Septi   | COB COED : |                           | 98 07 06  | 1320             | 98-05180             | 94-98-00268 | 0.2             | 8.75                      | 3.5    | 2   |      | 10          |       | 30.4 |
| Specific Lake - Station #6  Specific Lake - Station #6  Specific Cales - Station #6  Specific Lake - Station #6  S |            | (deep hole rr Forest City | 98.07.06  | 1325             | 98-05181             | 94-96-00269 | 4.8             | 4                         |        | 911 |      | 4           |       | 9    |
| Specific Lake - Station #6  Specific Lake - Station #6  Specific Cale - Station #6  Specific Lake - Station #6  Specific Cale - Station #6  Specific Lake - Station #6  Specific Cale - Station #6  Sp |            |                           | 96.07.06  | 1346             | 98-05182<br>98-05183 | 94-96-00270 | 16.0            | 8.53<br>8.53              | 3.3    |     | 1.22 | 0           | 1 (7) | 31.0 |
| Specime Laker - Station #6  Specime Company Representation #6  Specime Representation #6  Specim |            |                           | 90 80 80  | 1362             | 98-07050             | 94-98-00353 | 0.2             | 9.69                      | 3.6    | -   | -    | w           | 6     | 34.4 |
| 99 0,000 0 94-070501 94-99-00054 12.0 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9   |            |                           | 98 08 05  | 1250             | 98-07060             | 94-98-00354 | 5.8             |                           |        | -   |      |             | -     | 1    |
| Specific Later Station #5  Specific Later Station #5  Specific Later Station #5  Specific Later Station #5  Specific Later Station #6  Specific Later Statio |            |                           | 98.08.05  | 1300             | 98-07061             | 94-98-00355 | 12.0            | 9.12                      | 3.6    |     | 138  | กหา         | 4 8   | 90   |
| Specific Later - Station #5  Specific Later - Station #6  Specific Later - |            |                           |           |                  |                      |             |                 |                           |        |     | •    | N.          | 36    | •    |
| Specific Later - Station #5 98 07 07 1200 98-05324 94-98-00395 51 9 64 37 11 109 20 15 100 100 100 100 100 100 100 100 100   |            |                           | 98.08.30  | 1446             | 96-06582             | 94-98-00382 | 0.2             | 9.52                      | 8      |     | -    | n           | 4     | 0    |
| Spechric Later - Station #5 98-07/07 1200 98-05324 94-98-00295 51 619 2.6 619 2.6 0 1.1 109 20 18-07/07 1200 98-05325 94-98-00292 51 619 2.6 0 1.1 109 20 18-07/07 1200 98-05325 94-98-00292 51 619 2.6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |            |                           | 8 8 8 8 8 | 1458             | 96-06564             | 94-98-00384 | 5.5             | 9.64                      | 3.7    |     | -    | un          | 8     | 0    |
| Spechic Lake - Station (eds) Polis nr Walker Pty         98.07.07         1200         98-05326         94-96-00291         5.1         6.19         2.6         0.11         1.09         20           (deep hole nr O'Malleys is)         98.07.07         1205         98-05326         94-98-00291         5.1         6.09         2.8         0.11         1.09         20           96.00 nr You in the Company of t  |            |                           | 96.08.30  | 1503             | 98-08585             | 94-96-00385 |                 | 9.71                      | 4.0    |     | 1.32 | 0           | 8     | 90   |
| Global professor of O'Maillays is)   98.07707   1211   99.06325   94.99-00235   51   6.09   2.6   1.10   1.00      | SCR-SPED 5 |                           | 96.07.07  | 1200             | 98-05324             | 94-96-00291 | 0.2             | 6.19                      | 2.6    |     |      | 8           | 24    | 100  |
| 96.07.07 1220 96-05326 94-96-00284 7.0 6.09 2.6 1.14 10 10 10 10 10 10 10 10 10 10 10 10 10  |            |                           | 98.07.07  | 1205             | 98-05325             | 94-96-00292 | ±.01            | 0 60                      | 8      |     |      |             | 3.6   | -    |
| Specific Lake - Station #6         96.08.03         1227         96-08008         94-96-00315         4.1         6.97         3.4         0         19         114         10           96.08.03         127.7         96-0800         94-96-00317         4.1         6.97         3.2         0         19         1114         16           96.08.03         127.7         96-0830         94-96-00317         1.1         6.89         3.0         0         2.9         1.14         16           96.08.76         1227         96-0830         94-96-0037         5.0         7.32         3.0         0         2.3         1.15         16           96.08.76         12247         96-0830         94-96-0037         7.2         3.3         0         2.8         1.15         16           96.08.76         12247         96-0830         94-96-0037         1.3         7.2         3.3         0         2.8         1.16         2.0           90.08.76         12247         96-0830         94-96-0037         1.3         7.2         3.3         1.14         2.0           90.08.76         1000         96-0830         94-96-0038         5.6         7.54         3.0         1.14 <td></td> <td></td> <td>96.07.07</td> <td>1211</td> <td>96-05326</td> <td>94-98-00293</td> <td>13.0</td> <td>6.09</td> <td>2.6</td> <td></td> <td>01.1</td> <td>5 5</td> <td>18</td> <td>7</td>   |            |                           | 96.07.07  | 1211             | 96-05326             | 94-98-00293 | 13.0            | 6.09                      | 2.6    |     | 01.1 | 5 5         | 18    | 7    |
| Specific Lake - Station #6  98.08 03 1217 98-08009 94-900316 41 697 32 115 113 10  98.08 03 1217 98-08010 94-90-00316 112 6.88 3.0 0 2.8 114 15  98.08 03 26 1247 98-08310 94-90-00371 13 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |            |                           | 20 00 00  |                  | and man              | 94.00.00.00 | 0.0             | 7.49                      | 4      |     |      | 10          | 18    | 4    |
| Specific Late - Station #6         96.08 07 or 100         94.98-00317         11.2         6.99         3.2         1.14         15           98.08 08 26         1223         98-08819         94-98-00371         5.0         7.32         3.0         0         2.8         1.14         15           98.08 26         12247         98-08817         94-98-00371         5.0         7.2         3.3         0         2.8         1.14         15           98.08 26         12247         98-08316         94-98-00372         7.2         3.3         0         2.8         1.14         15           98.08 26         12247         98-08316         94-98-00373         13.5         8.41         3.4         1.14         20           98.07 07         096.0         98-08316         94-98-00286         5.0         7.54         3.0         0         1.14         20           (deep hole new Walker Pt)         98.07 07         096-08319         94-98-00286         5.0         7.54         3.0         0         1.14         20           98.07 07         1003         98-06318         94-98-00286         5.0         7.54         3.0         2.4         1.16         1.1         1.1         1.1 <td></td> <td></td> <td>96.08.03</td> <td>1211</td> <td>98-06809</td> <td>94-98-00316</td> <td>4.1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td>   |            |                           | 96.08.03  | 1211             | 98-06809             | 94-98-00316 | 4.1             |                           |        |     |      |             |       | 1    |
| Specinic Lake - Station #6 96.07.07 0947 98-06346 94-98-00373 13.5 6.89 3.0 1714 15 15 15 96.08.26 1247 98-06387 94-98-00371 13.5 8.41 3.4 1.11 10 10 10 10 10 10 10 10 10 10 10 10 1  |            |                           | 98.08.03  | 1217             | 98-06810             | 94-98-00317 |                 | 6.97                      | 3.2    |     | 1.13 | 9           | 77    | 10 9 |
| Specific Lake - Station #6 96.08.26 1247 98-0836 94-98-00371 5.0 7.32 3.0 0 2.3 1.15 15 50 98.08.26 1247 94-98-00371 5.0 7.2 7.2 3.3 0 2.8 1.15 20 98.08.26 1251 98-08389 94-98-00373 13.5 8.41 3.4 1.14 20 98.07.07 0947 98-08316 94-98-00283 0.2 7.51 3.2 0 11 1111 1.11 1.0 10 98.07.07 1002 98-08316 94-98-00286 5.0 7.54 3.0 0 1116 1.16 1.0 10 98.07.07 1012 98-08318 94-98-00286 5.0 7.55 3.1 1.16 1.16 5.9 98.08.03 1107 98-08005 94-98-00311 5.0 7.75 3.4 0 2.4 1.16 5.9 98.08.03 1107 98-08005 94-98-00311 5.5 7.75 3.4 0 2.4 1.16 5.9 98.08.03 1107 98-08005 94-98-00311 5.5 7.88 3.4 0 2.2 1.20 1.20 1.20 98.08.03 1107 98-08005 94-98-00311 5.5 7.88 3.4 0 2.2 1.20 1.5 98.08.03 1107 98-08005 94-98-00312 5.0 7.88 3.4 0 2.2 1.20 1.5 98.08.03 1107 98-08005 94-98-00313 5.5 7.88 3.4 0 2.2 1.20 1.5 98.08.03 1107 98-08005 94-98-00313 5.5 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2  |            |                           | 96.06.03  | 1223             | 98-06811             | 94-96-00318 | 11.2            | 6.88                      | 3.0    |     | 1.14 | 15          | 17    | 0    |
| Special Zolume         1247         98-00387         94-98-00371         5.0         7.2         7.2         3.3         0.28         1.12         20           98.08.26         1251         98-06386         94-98-00372         7.2         7.2         3.3         1.14         20           Specific Lake - Slation #6         98.07.07         0947         98-06316         94-98-00283         0.2         7.61         3.2         0         1.14         20           (deep hole in in Walker Pt)         98.07.07         1003         98-05317         94-99-00286         5.0         7.54         3.0         1.10         10           98.07.07         1002         98-05319         94-99-00286         5.0         7.54         3.0         1.10         10           98.07.07         1002         98-05319         94-99-00286         5.0         7.55         3.1         1.16         15           98.02.03         1104         98-06319         94-99-00314         9.0         7.82         3.4         2.4         1.16         5           98.08.03         1114         98-08076         94-99-00314         9.0         7.82         3.5         1.22         10           98.08.06 <t< td=""><td></td><td></td><td>96 08.26</td><td>1245</td><td>98-08386</td><td>94-98-00370</td><td>0.2</td><td>7.32</td><td>3.0</td><td></td><td></td><td>15</td><td>28</td><td>0</td></t<>  |            |                           | 96 08.26  | 1245             | 98-08386             | 94-98-00370 | 0.2             | 7.32                      | 3.0    |     |      | 15          | 28    | 0    |
| Specinic Lake - Station #6 98.07.07 0947 98-05316 94-98-00373 13.5 8.41 3.4 1.14 20  Specinic Lake - Station #6 98.07.07 0947 98-05316 94-98-00283 0.2 7.61 3.2 0.11 1.11 10  Section Lake - Station #6 98.07.07 0947 98-05316 94-98-00284 5.8 7.54 3.0 0.09 1.10 1.0  Section Lake - Station #6 98.07.07 1002 98-05316 94-98-00286 5.0 7.54 3.0 0.09 1.10 1.0  Section Lake - Station #6 98.07.07 1002 98-05316 94-98-00286 5.0 7.54 3.0 0.09 1.10 1.0  Section Lake - Station #6 98.07.07 1002 98-05316 94-98-00286 5.0 7.54 3.0 0.09 1.10 1.0  Section Lake - Station #6 98.07.07 1002 98-05316 94-98-00286 5.0 7.54 3.0 0.09 1.10 1.0  Section Lake - Station #6 98.08.03 1.007 94-98-00286 5.0 7.88 3.4 0.0 2.4 1.16 5.0  Section Lake - Station #6 98.08.03 1.007 94-98-00313 5.0 7.88 3.4 0.0 2.7 1.20 1.0  Section Lake - Station #6 98-08.08 94-98-00365 5.0 8.0 7.8 3.4 0.0 2.7 1.20 1.0  Section Lake - Station #6 98-08.08 94-98-00365 1.0 5.0 8.2 3.4 1.10 1.11 1.11 1.11   |            |                           | 36.06.26  | 1247             | 98-08387             | 94-98-00371 | 5.0             | 1                         |        |     |      | 8           | 96    | 4    |
| Specinic Lake - Station #6 96.07.07 0947 98-05316 94-98-00283 0.2 7.61 3.2 0.11 1.11 10 (deep hole nr Walker Pt) 98.07.07 1002 98-05317 94-98-00286 5.0 7.54 3.0 0.9 1.10 10 10 98.07.07 1012 98-05319 94-98-00318 9.0 7.55 3.1 1.16 15 98.08.03 1057 98-06804 94-98-00311 0.2 7.75 3.4 0.24 116 5 98.08.03 1104 98-06056 94-98-00313 5.5 7.88 3.4 0.22 1.22 10 98.08.03 1104 98-06905 94-98-00313 5.5 7.82 3.5 1.20 15 98.08.08 1004 98-08378 94-98-00314 90. 7.82 3.5 3.5 1.20 15 98.08.28 1010 98-08309 94-98-00354 5.7 8.21 3.4 0.27 1.20 15 98.08.28 1010 98-08309 94-98-00354 5.7 8.21 3.4 0.28 117 10   |            |                           | 98.08.26  | 1251             | 98-08388             | 94-96-00372 | 13.5            | 8.41                      | E) E)  |     | 1.14 | 8 8         | 8 8   | r on |
| Specinic Lake - Station #6         96.07.07         0947         98-05316         94-90-00283         0.2         7.61         3.2         0         1.11         10           (deep hole nr Walker Pt)         98.07.07         1003         98-05317         94-99-00284         5.8         7.54         3.0         1.10         10           98.07.07         1003         98-05319         94-99-00286         5.0         7.54         3.0         1.10         10           98.07.07         1012         98-05319         94-99-00286         9.0         7.55         3.1         1.16         15           98.08.03         1057         98-06905         94-99-00313         5.5         7.75         3.4         0.2         2.4         1.16         5           98.08.03         1104         98-06905         94-99-00313         5.5         7.89         3.4         0.2         2.4         1.16         5           98.08.05         1104         98-0606         94-99-00314         90         7.82         3.5         1.22         10           98.08.26         1004         96-0807         94-99-00364         5.7         8.21         3.4         0.27         1.20         15  |            |                           | 20.00     | 200              |                      |             |                 |                           |        |     |      |             |       |      |
| Gleep hole nr Walker Pt  98.07 07 0951 98-05317 94-98-00284 5.8 3.0 7.54 3.0 0 0.9 1.10 10 10 10 10 10 10 10 10 10 10 10 10 1  | 9 0300     |                           | 98 07 07  | 0947             | 98-05316             | 94-98-00283 | 0.2             | 7.61                      | 3.2    |     |      | 10          | 27.   | 6    |
| 98.07.07 1003 96-05316 94-96-00285 5.0 7.54 3.0 1.16 15 15 16 15 16 15 16 16 15 16 16 16 16 16 16 16 16 16 16 16 16 16   | מבעיייים   |                           | 98.07.07  | 0961             | 98-05317             | 94-98-00284 | 80 ti           |                           | 0      |     |      | ç           | 25    | 4    |
| 1057         99-08904         94-98-00311         0.2         7.75         3.4         0.24         1.16         5           1104         98-08905         94-98-00312         5.0         7.89         3.4         0.24         1.16         5           1107         99-08906         94-98-00314         9.0         7.82         3.5         1.22         10           1004         98-08978         94-98-00362         0.2         8.07         3.3         0.27         1.20         15           1006         98-08309         94-98-00363         5.0         8.21         3.4         0.28         1.17         10           1010         98-08389         94-98-00365         10.5         8.21         3.4         1.17         10           1011         98-08381         94-98-00365         10.5         8.2         3.4         1.17         10  |            |                           | 98.07.07  | 1003             | 96-05318<br>98-05319 | 94-98-00285 | 0.0             | 7.56                      | 3.5    |     | 1.10 | ξ.          | 27    | n i  |
| 100/<br>  1107   98-06805   94-98-00312   5/5   7/88   3.4   1.16   5   1.107   98-06805   94-98-00313   5/5   7/82   3.5   2.2   1.22   10   1004   98-06978   94-98-00363   5/0   8/21   3.3   0   2.7   1.20   15   1010   98-08309   94-98-00363   5/0   8/21   3.4   1.17   10   1013   98-0838   94-98-00365   10.5   8/2   3.4   1.16   10   10   10   10   10   10   10  |            |                           |           |                  | 200000               | 04 00 00044 | 0               | 776                       | 3.4    |     |      | NO.         | 83    | 1    |
| 1107         98-06806         94-98-00313         5.5         7.82         3.5         0         22         10           1014         98-06807         94-98-00314         9.0         7.82         3.5         3.5         122         10           1004         98-08379         94-98-00363         5.0         8.07         3.3         0         2.7         1.20         15           1010         98-08399         94-98-00363         5.0         8.21         3.4         1.17         10           1013         98-08381         94-98-00365         10.5         8.2         3.4         1.16         10  |            |                           | 98.08.03  | 1104             | 98-06805             | 94-96-00312 | 9.0             | 7.88                      | 3.6    |     |      | V)          | 8     | 1    |
| 1114 98-06907 94-98-00314 9.0 7.82 3.5 1.22 10 10 1004 98-06978 94-98-00392 0.2 8.07 3.3 0.27 1.20 15 1006 98-08379 94-98-00363 5.0 8.21 3.4 0.28 1.17 10 1013 98-0838 94-98-00365 10.5 8.2 3.4 1.16 10  |            |                           | 98.08.03  | 1107             | 90-06906             | 94-98-00313 | KD<br>KD        | -                         | 4      |     | •    |             | 8     | 6    |
| 1004         98-08378         94-98-00362         0.2         0.07         3.3         0.27         1.20         15           1006         96-08379         94-58-00363         5.0         0.07         3.4         0.28         1.17         10           1010         98-08380         94-98-00365         10.5         8.21         3.4         1.17         10           1013         98-08381         94-98-00365         10.5         8.2         3.4         1.16         10   |            |                           | 98.08.03  | 1114             | 28-06807             | 94-98-00314 | 9.0             | 7.82                      | m<br>m |     | 77   | 0           | 3     | Đ,   |
| 1006 98-08379 94-98-00364 5.7 8.21 3.4 1.17 10 1013 98-08380 94-98-00365 10.5 8.2 3.4 1.16 10  |            |                           | 98.08.26  | 1001             | 98-08378             | 94-98-00382 | 0.5             | 8.07                      | 6,0    |     |      | 15          | 8     | 4    |
| 1010 96-08381 94-96-00365 10.5 8.2 3.4 1.16 10   |            |                           | 98.08.26  | 1006             | 96-08379             | 28-00383    | 0 to            | A 24                      | 46     |     |      | 10          | 30    | m    |
|  |            |                           | 98.08.26  | 1013             | 98-08381             | 94-98-00365 | 10.5            | 8.2                       | 3.6    |     | 1.16 | 0           | 8     | -    |
|  |            | (Palfrey Lake above Windy | 98.07.07  | 1111             | 98-05321             | 94-98-00288 | - SS (6)        | 5.5                       | 2.5    |     | 96.0 | 8           | 8     | 0    |
| 1111 98-05321 94-98-00288 5.1 4 0.2 4 0.2 1118 08-05322 94-98-00289 8.5 5.5 2.5 0.94 20  |            |                           | 98 07 07  | 2                | 98-05323             | 94-98-00290 |                 | 5.64                      | 2.5    |     | 0.75 | 10          | 2     | m    |

Appendix 5b (cont.). 1998 St. Croix Lakes Study Fletd and Laboratory Data. Values shown as zero (0) refect no defectible value at the limit of quantification (see lest methods at end of table).

| Station #  | Location                                  | Date<br>y/m/d        | Time<br>from ADT | - P      | Field #     | Sample<br>depth as | Mg/l as CaCO3 | 0 50 C | 5 50 | CN A | 0 <b>5</b> 0 | Color<br>as<br>color units | Cond | S P   |  |
|------------|---|----------------------|------------------|----------|-------------|--------------------|---------------|--------|------|------|--------------|----------------------------|------|-------|--|
| SCR-SPED 7 |   | 98.08.03             | 1400             | 98-06812 | 94-96-00319 | 0.2                | 5.98          | 2.7    | 00   | 5.0  | 1.03         | 0                          | 25.4 | 5.1   |  |
|            |   | 98.08.03             | 1409             | 98-06814 | 94-96-00321 | 7.2                | 5.9           | 2.7    |      | 6.3  | 186          | 10                         | 25.1 | 52    |  |
|            |   | 96.06.03             | 1415             | 98-06815 | 94-96-00322 | 12.0               | 6.22          | 2.8    |      |      | 1.02         | 15                         | 26.3 | 4.8   |  |
|            |   | 98.08.28             | 1132             | 98-06382 | 94-98-00366 | 0.5                | 5.98          | 2.6    | o    | 2.5  | 9.           | 15                         | 25.5 | 5.1   |  |
|            |   | 98.08.26             | 1135             | 98-08383 | 94-98-00367 | 4.2                | 6.16          | 2.7    |      |      | 1.01         | 8                          | 25.6 | 5.1   |  |
|            |   | 98.08.26             | 1138             | 98-08384 | 94-98-00368 | 6.3                |               |        | o    | 2.1  |              |                            |      |       |  |
|            |   | 98.08.26             | 1140             | 98-08385 | 94-98-00369 | 7.5                | 6.38          | 3.0    |      |      | 1.08         | R                          | 25.9 | 5.1   |  |
| SCR-WAUK   | SCR-WALIK 1 Wauklehegan Lake - Station #1 | 98.07.08             | 158              | 98-05431 | 94-96-00306 | 0.2                | 4.36          | 2.2    |      | 3.4  | 2.27         | 30                         | 26.8 | 89    |  |
|            | (deep hole, east end)                     | 98.07.08             | 1205             | 98-05432 | 94-96-00307 | 0.2                | 4.22          | 22     |      | 2.3  | 2.24         | 05                         | 26.6 | 60    |  |
|            |   | 98.07.08             | 1210             | 98-05433 | 94-98-00308 | 2.7                |               |        | 0    | 5.1  |              | 1                          |      |       |  |
|            |   | 98.07.06             | 1158             | 98-05434 | 94-99-00309 | 2.8                | 4.6           | 2.4    |      |      | 2.76         | 40                         | 29.6 | 01    |  |
|            |   | 98.07.08             | 1225             | 98-05435 | 94-98-00310 | 4.5                | 5.55          | 2.7    |      |      | 3.10         | 8                          | 33.6 | 0.6   |  |
|            |   | 98.08.04             | 1139             | 00690-96 | 94-98-00329 | 0.2                | 5.06          | 2.3    |      | 6.1  | 2.37         | 40                         | 28.9 | 8.2   |  |
|            |   | 98.08.04             | 1145             | 98-06901 | 94-98-00330 | 2.0                |               |        | o    | 5.9  |              |                            |      |       |  |
|            |   | 98.08.04             | 1148             | 98-06902 | 94-98-00331 | 2.4                | 4.68          | 2.3    |      |      | 2.32         | 40                         | 28.6 | 8.2   |  |
|            |   | 98.08.04             | 1154             | 98-06903 | 94-98-00332 | 3.8                | 4.68          | 2.4    |      |      | 2.44         | 9                          | 29.5 | 8.2   |  |
|            |   | 98.09.13             | 1403             | 98-09257 | 94-98-00406 | 0.5                | 5.36          | 2.4    | 00   | 13.6 | 2.61         | 9                          | 30.6 | 7.3   |  |
|            |   | 36.06.13             | 97               | 90750-90 | 34-38-00407 | 6.4                | 200           |        |      | 0.   | 200          | **                         | 200  | 36    |  |
|            |   | 98.08.13<br>56.09.13 | 1432             | 38-08250 | 94-98-00409 | 4.                 | 5.34          | 2.4    |      |      | 2.60         | 3 3                        | 30.5 | 7.6   |  |
| SCR-WAUK 2 | SCR-WALIK 2 Waukiehegan Lake - Station #2 | 96.07.08             | 1118             | 98-05427 | 94-98-00302 | 0.5                | 9.00          | 1.9    | o    | 2.6  | 1.92         | 9                          | 24.3 | 1.0   |  |
|            | (clean hole west end)                     | 98 07 08             | 1125             | 98-05428 | 94-98-00303 | 1.8                | 4.1           | 2.0    |      |      | 181          | 30                         | 24.2 | 60.33 |  |
|            | (mark inner mark mark)                    | 36.07.08             | 1131             | 98-05429 | 94-98-00304 | 2.6                | 3.91          | 2.0    |      |      | 1.86         | 9                          | 24.5 | 0.1   |  |
|            |   | 96.07.08             | 1125             | 98-05430 | 94-98-00305 | 3.2                |               |        | o    | 4.3  |              |                            |      |       |  |
|            |   | 98.08.04             | 1222             | 98-06896 | 94-98-00325 | 0.2                | 4.33          | 2.6    | a    | 3.6  | 2.07         | 9                          | 26.9 | 7.6   |  |
|            |   | 98.08.04             | 1225             | 98-06897 | 94-98-00326 | 2.0                | 4.28          | 2.5    |      |      | 2.07         | 40                         | 26.8 | 8.0   |  |
|            |   | 96.06.04             | 1230             | 98-06896 | 94-96-00327 | 2.5                |               |        | 0    | 3.3  |              |                            |      |       |  |
|            |   | 98.08.04             | 1238             | 66890-96 | 94-98-00328 | 3.0                | 4.29          | 2.1    |      |      | 2.07         | 90                         | 26.8 | 7.7   |  |
|            |   | 98.09.13             | 1432             | 98-09253 | 94-98-00402 | 0.2                | 4.43          | 2.2    | o    | 4.2  | 2.21         | 40                         | 27.8 | 7.1   |  |
|            |   | 98.09.13             | 1435             | 98-09254 | 94-98-00403 | 2.0                | 4             | 2.1    |      |      | 2.24         | 8                          | 27.6 | 7.1   |  |
|            |   | 98.09.13             | 1439             | 98-09255 | 94-98-00404 | 2.6                |               |        | o    | 4.9  |              |                            |      |       |  |
|            |   | 98.09.13             | 1441             | 98-09256 | 94-98-00405 | 1                  | 4.45          | 2.2    |      |      | 2.22         | 30                         | 27.4 | 7.2   |  |

Appendix 5b (cont.). 1998 St. Croix Lakes Study Fleid and Laboratory Data. Values shown as zero (I) reflect no detectible value at the limit of quantification (see test methods at end of tal

| Station #  | Date<br>y/m/d  | Time<br>from ADT             | Lab #                            | Field #  | × 2 × | Mg/ as   | NOK NOK N | * 8   | Ŧ.             | SO4<br>SO4           | Secchi<br>as a       | TP-L<br>mg/l a | TP-L<br>mg/l as | Fecal coliforms<br>CFU/100ml | Total<br>Coliforms<br>MPN/100ml |
|------------|--|------------------------------|----------------------------------|--|-------|----------|-----------|-------|----------------|----------------------|----------------------|----------------|-----------------|------------------------------|---------------------------------|
| SCR CNOS 1 | 96.07.08<br>96.07.08                                     | 0909<br>0916<br>0820         | 96-05424<br>96-05425<br>98-05426 | 94-98-00299<br>94-98-00300<br>94-98-00301                | 0.188 | 9.1.     |           | 00    | 7.28           | 1.54                 | 1.65                 | 00             | 0.011           |                              |                                 |
|            | 96.06.04   | 0919                         | 98-06894                         | 94-98-00323  | 0.160 | 2.3      |           | 00    | 7.14           | 1.78                 | 6.1.                 | 00             | 0.016           | ND. ND                       | 1300, 1120                      |
|            | 96.09.13<br>96.09.13                                     | 1120                         | 98-09251<br>98-09252             | 94-98-00401  | 0.185 | 2.1      |           | 00    | 7.17           | 1.05                 | 2 2                  | 00             | 0.013           | 13, 10                       | 649, 548<br>579, 548            |
| SCR EGR 1  | 96.07.06<br>96.07.06<br>98.07.06                         | 0940<br>0962<br>1010         | 98-05172<br>98-05174<br>98-05174 | 94-98-00260<br>94-98-00261<br>94-98-00262                | 0.250 | 2 5 5 5  |           | 0 00  | 7.26           | 2.65                 | 8 8 8 8              |                | 0 00            | 2.2                          | 10.2                            |
|            | 8888   | 0948<br>0952<br>0957         | 98-07051<br>98-07052<br>98-07053 | 94-96-00345<br>94-96-00346<br>94-96-00347                | 0.339 | 4 46     |           | 0 00  | 7.47           | 3.01                 | 0000                 |                | 0 00            | NO. NO                       | 75, 84                          |
|            | 86 06 30<br>86 08 30<br>86 08 30<br>86 08 30<br>86 08 30 | 1203                         | 98-08574<br>98-08575<br>98-08576 | 94-96-00374<br>94-96-00375<br>94-96-00376<br>94-96-00377 | 0.307 | 4 46     |           | 0 000 | 7.17           | 2.79                 | 80 80 80<br>80 80 80 | ٠              | 0 00            | ND. ND                       | 70, 35                          |
| SCR EGR 4  | 96 07 06<br>96 07 06<br>96 07 06                         | 1130                         | 98-05176<br>98-05178<br>98-05178 | 94-96-00264<br>94-96-00265<br>94-96-00266<br>94-98-00267 | 0.261 | 5 55 5   |           | 0 00  | 7.23           | 2.50                 | 7.0 7.0 7.0 7.0 7.0  |                | 0 00            | 60 4                         | 53                              |
|            | 8888   | 1110                         | 98-07056<br>98-07056<br>98-07057 | 94-98-00350<br>94-98-00351<br>94-98-00352<br>94-98-00353 | 0.232 | ES E     | د دد      | 00 0  | 7.43           | 2.85 2.78 2.88       | 0 0 0 0              |                | 00 0            | NO, NO                       | 141, 81                         |
|            | 00 00 00<br>00 00 00<br>00 00 00<br>00 00 00<br>00 00    | 1318<br>1321<br>1324<br>1328 | 98-08578<br>98-08579<br>98-08580 | 94-98-00378<br>94-96-00379<br>94-96-00380<br>94-96-00381 | 0.308 | 46 6     |           | 00 0  | 7.36           | 2.79                 | *****                |                | 00 0            | ND. ND                       | 108, 152                        |
| SCR EGR 6  | 88 97 98<br>86 97 98<br>80 98 98                         | 1655<br>1706<br>1712         | 98-05184<br>98-05185<br>98-05186 | 94-96-00272<br>94-96-00273<br>94-96-00274<br>94-96-00275 | 0.247 | 12 12 12 |           | 0 00  | 7.26           | 2.50<br>2.48<br>2.64 | 0000                 |                | 0 00            | 00                           | 10                              |
|            | 88 88 88<br>88 88 88<br>88 88 88                         | 1447<br>1453<br>1456<br>1501 | 98-06904<br>98-06906<br>98-06906 | 94-96-00334<br>94-96-00334<br>94-96-00335<br>94-98-00336 | 0.345 | 46 5     | د دد      | 00 0  | 7.32 7.32 7.30 | 2.83                 | 0 0 0 0<br>0 0 0 0   |                | 00 0            | ND, 1                        | 23, 39                          |

98

5

128

138

579

822

8

0

7.34

0

0.351

158

00

Colforms MPN/100ml Total 148 52 8 8 45 38 Fecal coliforms CFU/100ml 99 9 9 9 2 22 9 500 NO. Q ō. Q. 99 Q. o' 0.005 0.005 0.005 0000 mg/ as 0.00 00 0 000 6 000 0 00 00 Secchi 7777 0000 504 504 2.00 2.59 2.67 88 2.14 2.15 2.25 1.78 28 217 2.27 2.23 2.91 7.3 7.31 343 727 7.37 7.42 7.45 7.42 7.45 7.47 7.49 Ł 2 00 000 0 000 0 00 00 0 000 000 00 0 00 0 00 0 Š Appendix Sb (cont.), 1988 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table). àz درد Non 4 10 200 5. 5 404 2 4 2 2 0.220 0.331 0.351 0.280 0.278 0.268 0.382 0.300 0.289 0.328 0.23 0.268 0.283 326 × 5× 94-96-00386 94-96-00386 94-96-00388 94-96-00398 94-96-00399 94-96-00400 94-96-00276 94-96-00277 94-96-00278 94-96-00337 94-96-00338 94-96-00330 94-96-00340 94-96-00394 94-96-00395 94-96-00396 94-96-00397 94-96-00356 94-96-00356 94-96-00360 94-96-00360 94-96-00361 94-96-00390 94-96-00391 94-96-00393 94-96-00279 94-96-00280 94-96-00281 94-96-00282 94-98-00341 94-98-00342 94-98-00343 94-98-00296 94-98-00296 94-98-00297 94-98-00298 Field # 96-06913 96-08914 96-08914 98-05188 98-05189 98-05190 98-05328 98-05329 98-05330 98-05331 96-08916 96-08918 96-08918 98-05191 98-05192 98-05193 98-06909 98-07065 96-06912 96-06914 96-08925 98-08923 98-07066 98-07067 38-07063 98-07064 16-08924 90690-9K 98-08920 98-06911 38-08921 140 Time from ADT 505 510 515 526 0912 0920 0926 745 1214 1214 1216 1219 2543 1136 1012 1612 232 2 4 4 8 S6.08.03 S6.08.03 S6.08.03 98.09.03 98.09.03 98.09.03 98.07.06 98.07.06 98.07.08 96.07.07 96.07.07 96.07.07 96.09.03 96.09.03 96.09.03 96.07.06 96.07.06 96.07.06 8888 Date y/m/d 98 98 98 98 98 98 98 98 98 98 SCR NTH 1 SCR NTH 2 SCR SKIF 1 Station

Appendix 5b (cont.), 1988 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the irrnt of quantification (see test methods at end of table)

| Station #  | Date                                   | Time<br>from ADT | Lab #  | Field #  | × Px  | as Agm         | MON NO. | E    | SO4<br>SO4  | Section 8           | TP-L<br>mon as | coliforms<br>CFU/100mi | Coliforms<br>MPN/100ml |
|------------|--|------------------|--|--|-------|----------------|---------|------|-------------|---------------------|----------------|------------------------|------------------------|
| SCR SPED 1 | 98.07.06                               | 1320             | 98-05180                                     | 94-96-00266  | 0.266 | 1.2            | 0       | 7.19 | 2.35        | 9 4                 | 0.005          | 90                     | 2828                   |
|            | 8 07 08                                | 1335             | 98-05182<br>98-05183                         | 94-96-00271  | 0.207 | 2.5            | 000     | 7.10 | 2.35        | 4.4                 | 0.005          |                        |                        |
|            | 98.08.05                               | 1252             | 98-07059                                     | 94-96-00353  | 0.287 | 1.2            | ٦       | 7.40 | 2.68        | 80.80               | 0 1            | ND. ND                 | >2419, >2419           |
|            | 8 8 8                                  | 986              | 98-07061<br>98-07062                         | 94-96-00355  | 0.316 | 12             | 00      | 7.29 | 2.71        | 8 8                 | 00             |                        |                        |
|            | SE 08:30                               | 1446             | 98-08582                                     | 94-98-00382  | 0.310 | 1.3            | 1       | 7.20 | 2.64        | 0.0                 | 0.005          | S NO, ND               | 62, 57                 |
|            | 00 00 00 00 00 00 00 00 00 00 00 00 00 | 1503             | 98-08584<br>98-08535                         | 94-96-00365  | 0.301 | 1.3            | 0.05    | 7.30 | 2.66        | 200                 | 00             |                        |                        |
| SCR SPED 5 | 70.70                                  | 1200             | 98-05324                                     | 94-96-00291  | 0.214 | 1.1            | ٦ 0     | 7.10 | 2.26        | 5.1                 | ۱ 0            | 22                     | 66                     |
|            | 98.07.07                               | 122              | 98-05326                                     | 94-96-00293  | 0.247 | 1.2            | 77      | 7.02 | 2.29        | 5.1                 | 00             |                        |                        |
|            | 98.08.03                               | 1207             | 88-06808                                     | 94-98-00315  | 0.283 | 1.2            | 0       | 7.27 | 2.68        | 1.4                 | 0              | 1, 1                   | 69, 117                |
|            | 26.08.03<br>26.08.03                   | 1217             | 96-05810<br>96-05811                         | 94-96-00318  | 0.242 | 12             | 77      | 7.14 | 2.64        | 44                  | 90             |                        |                        |
|            | 98.08.26                               | 1245             | 98-08386                                     | 94-96-00370  | 0.299 | 1.2            | 0       | 7.16 | 2.73        | 0.0                 | L 0            | ND. ND                 | 73, 115                |
|            | 86.08.28<br>86.08.28<br>86.08.28       | 1251             | 98-08388<br>98-08388                         | 94-96-00372<br>94-96-00373                               | 0.313 | 1.3            | L 0     | 7.06 | 2.90        | 200                 | 0.005          |                        |                        |
| SCR SPED 6 | 98.07.07                               | 7460             | 98-05316                                     | 94-98-00283  | 0.247 | 1.2            | -0      | 7.16 | 2.39        | 60 80<br>80 80      | 0 7            | 0 8                    | 64                     |
|            | 98.07.07                               | 1003             | 98-05318<br>98-05319                         | 94-96-00286<br>94-96-00286                               | 0.234 | 1.1            | 00      | 7.16 | 2.35        | 55 85<br>80 80      | 00             |                        |                        |
|            | Se 08 03<br>88 08 03<br>88 08 03       | 1104             | 98-05804<br>98-05805<br>98-05806<br>98-05807 | 94-96-00311<br>94-96-00312<br>94-96-00313                | 0.245 | 51 5           | 00 0    | 723  | 2.80        | 8 8 8 8<br>8 8 8 8  | 11 1           | \$°                    | 88                     |
|            | 88 88 88<br>88 88 88<br>88 88 88       | 1000             | 96-08378<br>96-08379<br>96-08380<br>96-08381 | 94-98-00362<br>94-98-00363<br>94-98-00364<br>94-98-00368 | 0.312 | 12 12 12       | 0 00    | 7.26 | 285 271 271 | 0 0 0               | 0.006          | NO. ND                 | <b>3</b><br><b>3</b>   |
| SCR SPED 7 | 96.07.07<br>96.07.07                   | 1111             | 98-05320<br>98-05321                         | 94-98-00287  | 0.249 | 60 60<br>60 60 | 0 0     | 7.04 | 221         | 25 52 52<br>1 1 1 1 | 0 0            | 28 29                  | N N                    |
|            | 26 07 07                               |                  | 98-05323                                     | 94-98-00290  | 0.239 | 1.1            | L 0     |      | 2.02        | 5.5                 |                |                        |                        |

Appendix 5b (cont.), 1998 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| 98-06813 94-98-00319 99-06814 94-98-00321 99-06813 94-98-00321 99-06814 94-98-003221 99-06815 94-98-003221 99-06838 94-98-00368 99-06384 94-98-00368 99-06384 94-98-00368 99-06435 94-98-00308 99-06435 94-98-00308 99-06435 94-98-00308 99-06435 94-98-00308 99-06435 94-98-00308 99-06436 94-98-00308 99-06437 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308 99-065438 94-98-00308   | Station # | Date<br>y/m/d | from ADT | Lab #    | Field #       | mg/ x | Mg/mg/ as | O P Z | MOX<br>Nox<br>N | £    | SO4  | Secchi<br>38 E | E | mg/l as | coliforms<br>CFU/100ml | Coliforms<br>MPN/100ml | E E |
|--|-----------|---------------|----------|----------|---------------|-------|-----------|-------|-----------------|------|------|----------------|---|---------|------------------------|------------------------|-----|
| 98.08.03 1443 99.0811 44.95 002021 0.323 11.1 L 0 702 254 5.1 L 0 0 8.08 0.000 14.1   98.08.03 1445 99.0811 44.95 002022 0.346 11.1 L 0 700 2.64 5.1 L 0 0 1. ND 98.08.03 11.1 B 99.0811 41.1 B 99.0812 41.1 B 99.0811 41.1 B 99.0811 41.1 B 99.0811 41.1 B 99.0812 41.1 B 99.0811 41.1 B 99.0812 41.1 B 99.0811 4 |           | 96.08.03      | 1400     | 98-06812 |               | 0.343 |           | _     | 0               | 7.16 | 2.79 | 5.1            | ٦ | 0       | ND. ND                 | 31.                    | 23  |
| 96.06.25 1135 99.06393 94.96.0035 0.336 111 1 0 0 056 265 51 1 0 0 1.ND 96.06.25 1135 99.06393 94.96.0035 0.336 113 1 0 0 056 265 51 1 0 0 059 1.ND 96.06.25 113 99.06393 94.96.0035 0.330 113 1 0 0 056 264 53 0.009 96.0634 94.96.0035 0.330 113 1 0 0 056 264 53 0.009 96.0634 94.96.0035 0.330 113 1 0 0 056 277 0.006 96.064 97 96.067 97 96.06 97 9 |           | 96.08.03      | 1403     | 98-06813 | 94-98-00320   | 0 333 | * *       | -     | C               | 7.02 | 284  | , v            | - | c       |                        |                        |     |
| 98.08.25 1132 99-0393 94-9-0396 0.273 113 L 0 7.01 2.64 53 L 0 0.009 1. ND 98.08.25 1132 99-0393 94-9-0399 0.303 113 L 0 7.01 2.64 53 0.009 1. ND 98.08.25 1140 99-0393 94-9-0399 0.303 113 L 0 7.01 2.64 53 0.009 1. ND 98.08.25 1140 99-0393 94-9-0399 0.303 113 L 0 7.01 2.64 53 0.009 1. ND 98.08.25 1140 99-0393 94-9-0399 0.303 113 L 0 6.85 2.7  0.009 94-9-0399 0.303 113 L 0 6.85 2.7  0.009 94-9-0399 0.303 113 L 0 6.85 2.33 2.0  0.006 94-9-0399 0.303 2.7  L 0 6.85 2.33 2.0  0.006 94-9-0399 0.303 2.7  L 0 6.85 2.33 2.0  0.006 94-9-0399 0.303 2.7  L 0 6.85 2.33 2.0  0.006 94-9-0399 0.303 2.7  L 0 6.85 2.33 2.0  0.006 94-9-0399 0.303 2.7  L 0 6.85 2.33 2.0  0.006 94-9-0399 0.309 2.7  L 0 6.85 2.33 2.0  0.006 94-9-0399 0.309 2.7  L 0 6.85 2.33 2.0  0.006 94-9-0399 0.309 2.7  L 0 6.85 2.33 2.0  0.006 94-9-0399 0.309 2.7  L 0 6.85 2.33 2.0  0.006 94-9-0399 0.309 2.7  L 0 6.85 2.33 2.0  0.006 94-9-0399 0.309 2.7  L 0 6.87 2.39 2.7  D 0.006 94-9-0399 0.309 0.309 2.7  L 0 6.87 2.39 2.7  D 0.006 94-9-0399 0.309 0.309 2.7  L 0 6.87 2.39 2.7  D 0.006 94-9-0399 0.309 0.309 2.7  L 0 6.87 2.39 2.7  D 0.006 94-9-0399 0.309 0 |           | 20.00.03      | 1400     | 30-00014 | 94-96-00321   | 0.346 | -         |       | 00              | 6.68 | 2,66 | 1 40           |   | 0       |                        |                        |     |
| 96.00.25 1135 99-02842 94-99-00056 0273 113 L 0 707 241 53 L 0 1.ND 96.0025 1136 99-02842 94-99-00056 0272 112 L 0 707 261 53 0.005 96.0025 1136 99-02842 94-99-00056 0272 112 L 0 707 261 53 0.005 96.0025 1136 99-02842 94-99-00056 0272 12 L 0 6.85 227 27 0.005 96.0709 1210 99-02842 94-99-00007 0270 2 L 0 6.85 227 27 0.005 96.0709 1210 99-02842 94-99-00007 0270 2 L 0 6.85 227 27 0.005 96.0709 1210 99-02843 94-99-00009 0273 2 L 0 6.87 247 27 0.005 96.0709 1210 99-02843 94-99-00009 0273 2 L 0 6.87 247 27 0.005 96.0709 1210 99-02843 94-99-00009 0273 2 L 0 6.87 247 27 0.005 96.0804 1144 99-02842 94-99-00009 0274 2 L 0 6.87 247 27 0.005 96.0804 1144 99-00009 94-99-00009 0274 2 L 0 6.87 247 27 0.005 96.0804 1144 99-00000 0274 2 L 0 6.87 244 24 0.00 920 96.0804 1144 99-00000 0274 2 L 0 6.87 244 24 0.00 920 96.0804 1144 99-00000 0274 2 L 0 6.87 244 24 0.00 920 96.0804 1144 99-00000 0274 2 L 0 6.87 244 24 0.00 920 96.0804 1144 99-00000 0274 2 L 0 6.87 244 24 0.00 920 96.0804 1144 99-00000 0274 94-90-0000 0274 1141 99-00000 0274 94-90-00000 0274 1141 99-00000 0274 94-90-00000 0274 1141 99-00000 0274 94-90-00000 0274 1141 99-00000 0274 94-90-00000 0274 1141 99-00000 0274 94-90-00000 0274 1141 99-00000 0274 1141 99-90-00000 0274 94-90-00000 0274 1141 99-90-00000 0274 94-90-00000 0274 1141 99-90-00000 0274 94-90-00000 0274 1141 99-90-00000 0274 94-90-00000 0274 1141 99-90-00000 0274 94-90-00000 0274 92.0000 0274 92.00000 0274 92.00000 0274 92.00000 0274 92.000000 0274 92.00000 0274 92.00000 0274 92.00000 0274 92.00000 0274 92.00000 0274 92.00000 0274 92.000000 0274 92.000000 0274 92.000000 0274 92.00000 0274 92.000000 0274 92.0000000 0274 92.000000000 0274 92.000000000000000000000000000000000000  |           | 20.00.00      | 2        |          | 2000000       |       |           |       | ,               | }    | 3    |                |   |         |                        |                        |     |
| 98.00 25 1135 99-0533 99-0533 0.300 1.3 L 0 707 201 53 0.000 99-0533 1140 99-0535 99-0533 0.300 1.3 L 0 707 201 55 0.000 99-0530 99-0533 0.300 1.3 L 0 701 264 53 0.000 99-070 99 |           | 98.08.26      | 1132     | 98-08382 | 94-98-00366   | 0.278 | 1.1       | _     | 0               | 7.00 | 2.41 | 5.3            | - | 0       | 1. ND                  | 114, 1                 | 117 |
| 98.07.08         1139         98-05364         94-98-03368         94-98-03368         0.305         1.3         L         0         7.01         264         5.3         0.005           98.07.08         1140         98-05431         94-98-03369         0.305         1.3         L         0         7.01         264         5.3         0.006           98.07.08         1156         98-05431         94-98-03366         0.326         2         L         0         6.85         2.27         0.006           98.07.08         1159         98-05434         94-98-03360         0.336         2.2         L         0         6.85         2.47         2.7         0.006           98.07.08         1159         98-05434         94-98-0332         0.336         2.2         L         0         6.87         2.3         0         0.006           98.07.08         1159         98-0350         94-98-0333         0.396         2.2         L         0         6.87         2.4         0         0.006           98.08.04         114         98-03257         94-98-0333         0.396         2.2         L         0         6.87         2.44         2.7         0.006 <tr< td=""><td></td><td>98.08.26</td><td>1135</td><td>98-08383</td><td>94-98-00367</td><td>0.292</td><td>1.2</td><td>٦</td><td>0</td><td>7.07</td><td>2.01</td><td>5.3</td><td></td><td>0.000</td><td></td><td></td><td></td></tr<>  |           | 98.08.26      | 1135     | 98-08383 | 94-98-00367   | 0.292 | 1.2       | ٦     | 0               | 7.07 | 2.01 | 5.3            |   | 0.000   |                        |                        |     |
| 98.07.08 1156 98-05431 94-98-00366 0.386 2 2 L 0 6.66 227 27 0.006 98.07.08 1158 98-05432 94-98-00307 0.320 2 L 0 6.61 237 27 0.006 98.07.08 1159 98-05432 94-98-00307 0.328 2 L 0 6.63 247 27 0.009 98.07.08 1156 98-05432 94-98-00307 0.338 2.7 L 0 6.65 2.3 2.7 0.009 98.07.08 1156 98-05432 94-98-00307 0.338 2.7 L 0 6.65 2.3 2.7 0.009 98.07.08 1156 98-05435 94-98-00302 0.338 2.7 L 0 6.65 2.3 2.7 0.009 98.08.01 1156 98-05435 94-98-00302 0.338 2.7 L 0 6.65 2.3 2.0 0.006 NID. NID 98.08.01 1154 98-05903 94-98-00302 0.348 2.2 L 0 6.55 2.3 2.0 0.006 NID. NID 98.08.01 1154 98-05903 94-98-00407 0.401 2.4 L 0 6.93 2.4 2.4 0.001 9.000 98.09.01 1154 98-05903 0.498-00407 0.401 2.4 L 0 6.93 2.4 2.4 0.001 98.09.01 1152 98-05503 94-98-00408 0.402 2.3 L 0 6.93 2.4 2.4 0.001 98.09.01 94-98-00302 0.290 1.7 L 0 6.94 2.2 C 0 0.006 98.07 0.4 98-05503 0.498-00408 0.402 2.3 L 0 6.94 2.2 C 0 0.006 98.07 0.4 98-05503 0.498-00408 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4  |           | 98.08.26      | 1138     | 98-08384 | 94-98-00368   |       |           |       |                 |      |      | 5.3            |   |         |                        |                        |     |
| 98.07.08 1756 98-05432 94-96-00307 0.320 2 L 0 6.85 227 27 0.006 98.07.08 1705 98-05432 94-96-00307 0.320 2 L 0 6.81 3.14 27 0.006 98.07.08 1710 98-05433 94-96-00307 0.320 2 L 0 6.83 2.47 27 0.008 98.07.08 1725 94-96-00307 0.339 2.7 L 0 6.83 2.47 2.7 0.009 98.07.08 1725 94-96-00309 0.318 2.3 L 0 6.85 2.33 2.0 0.009 98-05434 94-96-00309 0.318 2.2 L 0 6.85 2.33 2.0 0.009 98.08.08.1 1145 98-06901 94-96-00309 0.399 2.2 L 0 6.85 2.33 2.0 0.009 0.009 98.08.08.1 1145 98-06901 94-96-00309 0.340 2.2 L 0 6.85 2.34 2.0 0.009 0.009 98.08.08.1 1145 98-06901 94-96-00309 0.401 2.4 L 0 6.82 2.18 2.0 0.009 0.009 98-06901 94-96-00309 0.401 2.4 L 0 6.82 2.18 2.0 0.009 0.009 98.08.08.1 1140 98-06902 94-96-00309 0.401 2.4 L 0 6.83 2.47 2.4 0.001 0.009 98.08.08.1 11410 98-06902 94-96-00309 0.294 1.7 L 0 6.99 2.4 0.001 0.009 98.09.09 11.5 98-06428 94-96-00309 0.294 1.7 L 0 6.99 2.4 0.001 0.009 98.09.09 11.5 98-06428 94-96-00309 0.294 1.7 L 0 6.99 2.2 1.0 0.009 0.009 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.4 0.001 0.009 99.09 0.009 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.4 0.001 0.009 99.09 0.009 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.4 0.001 0.009 99.09 0.009 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.4 0.001 0.009 99.09 0.009 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.4 0.009 99.09 0.009 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.4 0.009 99.09 0.009 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.0 0.009 99.09 0.009 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.0 0.009 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.0 0.009 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.0 0.009 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.0 0.009 94-96-00309 0.294 94-96-00309 0.294 1.7 L 0 6.99 2.2 2.0 0.009 94-96-00309 0.294 0.294 0.294 0.294 0.205 94-96-00309 0.294 0. |           | 96.08.26      | 1140     | 98-08385 | 94-98-00369   | 0.303 | 1.3       | _     | 0               | 7.01 | 2.64 | 5.3            |   | 0.005   |                        |                        |     |
| 98.07.08 1205 98-05432 94-90.0307 0330 2 L 0 6.91 3.14 27 0.006 99.07.08 1129 98-05433 94-90.0307 0338 2.7 L 0 6.87 2.39 2.7 0.008 98.07.08 1129 98-05434 94-90.0309 0318 2.7 L 0 6.87 2.39 2.7 0.008 98.07.08 1129 98-05435 94-90.0309 0318 2.7 L 0 6.87 2.39 2.7 0.008 98.07.08 1129 98-05435 94-90.0303 0398 2.7 L 0 6.85 2.33 2.0 0.006 ND. ND 98.08.04 1146 98-05802 94-90.0332 0396 2.2 L 0 6.82 2.18 2.0 0.007 98-05802 94-90.0303 0390 2.2 L 0 6.82 2.18 2.0 0.007 98.08.04 1146 98-05802 94-90.0303 0390 2.2 L 0 6.92 2.47 2.0 0.008 0.008 98.08.13 1400 98-05427 94-90.0307 0407 2.4 L 0 6.98 2.47 2.4 0.009 2. ND 98.09.13 1400 98-05427 94-90.0302 0240 17.7 L 0 6.98 2.25 2.4 0.019 98.09.13 1400 98-05427 94-90.0302 0.204 17.7 L 0 6.98 2.25 2.4 0.019 98.09.13 1400 98-05427 94-90.0302 0.204 17.7 L 0 6.98 2.25 2.4 0.019 98.09.13 1400 98-05428 94-90.0302 0.204 17.7 L 0 6.74 2.39 3.2 L 0.009 98.09.13 1422 98-05892 94-90.0303 0.200 17.7 L 0 6.74 2.39 3.2 L 0.009 98.00.10 17.5 98-05825 94-90.0303 0.200 17.7 L 0 6.74 2.39 3.2 L 0.009 98.00.10 17.5 98-05892 94-90.0303 0.200 17.7 L 0 6.74 2.39 3.2 L 0.009 98.00.10 17.2 98-05892 94-90.0303 0.200 17.7 L 0 6.74 2.39 3.2 L 0.009 98.00.10 17.2 98-05892 94-90.0303 0.200 17.7 L 0 6.74 2.39 3.2 L 0.009 98.00.10 17.2 98-05892 94-90.0303 0.200 17.7 L 0 6.84 2.27 2.30 3.2 L 0.009 98.00.10 17.2 98-05892 94-90.0303 0.348 2.2 L 0 6.87 2.30 2.2 C 0.009 98.00.10 17.2 98-05892 94-90.0303 0.348 2.2 L 0 6.84 2.27 2.5 C 0.009 98.00.10 17.2 98-05892 94-90.0303 0.348 2.2 L 0 6.84 2.27 2.5 C 0.009 98.00.10 17.2 98-05892 94-90.0303 0.348 2.2 L 0 6.84 2.27 2.5 C 0.009 98.00.10 17.2 98-05892 94-90.0303 0.348 2.2 L 0 6.84 2.27 2.5 C 0.009 98.00.10 17.2 98-05892 94-90.0303 0.348 2.2 L 0 6.84 2.27 2.5 C 0.009 98.00.10 17.2 98-05892 94-90.0303 0.348 2.2 L 0 6.84 2.27 2.5 C 0.009 98.00.10 17.2 98-05892 94-90.0303 0.348 2.2 L 0 6.84 2.27 2.5 C 0.009 98.00.10 17.2 98-05892 94-90.0303 0.348 2.2 L 0 6.84 2.27 2.5 C 0.009 98.00.10 17.2 94-90-0325 94-90-0325 0.348 2.2 L 0 6.84 2.27 2.5 C 0.009 98.00.10 17.4 2.9 0.001 0.4 12. | WALIK 1   | 98 07 08      | 1158     | 98-05431 | 94-96-00306   | 0.286 | 2         | _     | 0               | 6.85 | 2.27 | 2.7            |   | 900.0   |                        |                        |     |
| 98.07.08 1156 98-05433 94-96-00300 0318 23 L 0 6.87 239 27 0009 98.07.08 1158 96-05434 94-96-00300 0338 27 L 0 6.83 247 27 0009 98.07.08 1158 96-05436 94-96-00300 0338 27 L 0 6.85 247 27 0009 98.07.08 1158 96-056301 94-96-00302 0398 22 L 0 6.85 233 20 0006 ND. ND 98.08.04 1146 96-05901 94-96-00330 0398 22 L 0 6.85 233 20 0006 ND. ND 98.08.04 1146 96-05903 94-96-00330 0398 22 L 0 6.82 238 24 20 0006 ND. ND 98.08.01 1154 96-05903 94-96-00302 0376 22 L 0 6.83 247 20 0008 2. ND 98.08.01 1154 96-05903 94-96-00302 0376 23 L 0 6.83 244 24 0007 94-96-00302 94-96-00407 04.01 24 L 0 6.99 225 24 0.007 94-96-00302 94-96-00302 0390 117 L 0 6.99 225 24 0.007 94-96-00302 94-96-00303 0290 117 L 0 6.99 225 24 0.001 94-96-00302 94-96-00303 0290 117 L 0 6.94 225 24 0.001 94-96-00303 94-96-00303 0290 117 L 0 6.74 239 32 0.001 94-96-00303 94-96-00303 0290 117 L 0 6.74 239 32 0.001 94-96-00303 94-96-00303 0290 117 L 0 6.74 239 22  |           | 98 07 08      | 1205     | 98-05432 | 94-98-00307   | 0.320 | 2         | 1     | 0               | 6.91 | 3.14 | 2.7            |   | 0.006   |                        |                        |     |
| 98.07.08 1158 98-05434 94-98-00000 0.338 2.7 L 0 6.87 2.39 2.7 0.008 98.07.08 1725 98-05435 94-96-00010 0.338 2.7 L 0 6.85 2.33 2.0 0.006 ND. ND 98.08.04 1154 98-05901 94-98-00030 0.308 2.2 L 0 6.85 2.33 2.0 0.006 ND. ND 98.08.04 1154 98-05903 94-98-00033 0.300 2.2 L 0 6.82 2.18 2.0 0.007 98.08.0 1154 98-05903 94-98-00033 0.300 2.2 L 0 6.82 2.18 2.0 0.007 98.08.1 1154 98-05903 94-98-00040 0.401 2.4 L 0 6.93 2.47 2.0 0.008 2. ND 98.08.1 1154 98-05925 94-98-00040 0.401 2.4 L 0 6.93 2.44 2.4 0.01 98.09.1 1154 98-0525 94-98-00040 0.402 2.3 L 0 6.99 2.44 2.4 0.01 98.09.1 1154 98-0525 94-98-00040 0.402 2.3 L 0 6.99 2.2   |           | 98 07 08      | 1210     | 98-05433 | 94-98-00308   |       |           |       |                 |      |      | 2.7            |   |         |                        |                        |     |
| 98.08.04 1139 98-0800 94-98-0030 0.338 2.7 L 0 6.95 2.33 2.0 0.006 ND ND 99.08.04 1139 98-0800 94-98-0030 0.398 2.7 L 0 6.95 2.33 2.0 0.006 ND ND 99.08.04 1145 98-0800 94-98-0030 0.398 2.2 L 0 6.95 2.33 2.0 0.007 0.007 0.008 0.004 1145 98-0800 94-98-0030 0.398 2.2 L 0 6.95 2.47 2.0 0.006 ND ND 99.08.1 1148 98-0800 94-98-0030 0.376 2.3 L 0 6.95 2.47 2.0 0.008 ND ND 99.08.1 1140 98-0800 94-98-0040 0.401 2.4 L 0 6.93 2.42 2.4 0.008 2. ND 99.08.1 11410 98-0825 94-98-0040 0.401 2.4 L 0 6.98 2.42 2.4 0.008 2. ND 99.09.1 11410 98-0825 94-98-0040 0.402 2.4 L 0 6.98 2.4 2.4 0.01 0.008 0.001 |           | 98.07.08      | 1158     | 98-05434 | 94-98-00309   | 0.318 | 2.3       | _     | 0               | 6.87 | 2.39 | 2.7            |   | 0.008   |                        |                        |     |
| 98.08.04 1139 88-06901 94-98-00329 0.396 2.2 L 0 6.95 2.33 2.0 0.006 ND. ND 99.08.04 1145 98-06901 94-98-00330 0.396 2.2 L 0 6.82 2.18 2.0 0.007 2.0 0.007 28.08.01 1146 99-06902 94-98-00331 0.380 2.2 L 0 6.72 2.4 2.0 0.007 0.008 29.08.01 1146 99-06902 94-98-00332 0.376 2.3 L 0 6.95 2.4 2.0 0.008 2. ND 99.09.13 1410 98-09259 94-98-00408 0.401 2.4 L 0 6.95 2.4 2.4 0.01 2.4 0.01 2.0 0.008 29.09.13 1410 98-09259 94-98-00409 0.402 2.4 L 0 6.96 2.4 2.4 0.01 2.0 0.008 2.0 0.01 2.0 0.008 2.0 0.408 2.3 L 0 6.96 2.2 2.4 0.01 2.0 0.01 2.0 0.01 2.0 0.01 2.0 0.01 2.0 0.01 2.0 0.008 2.0 0.01 2.0 0.008 2.0 0.408 2.0 0.408 2.0 0.408 2.0 0.408 2.0 0.408 2.0 0.408 2.0 0.408 2.0 0.408 2.0 0.408 2.0 0.408 2.0 0.008 2.0 0.01  |           | 96.07.08      | 1225     | 98-05435 | 94-98-00310   | 0.338 | 2.7       | ك     | 0               | 6.83 | 2.47 | 2.7            |   | 0.009   |                        |                        |     |
| 96.08.04 1145 98-06901 94-98-00330 0.380 2.2 L 0 6.82 2.18 2.0 0.0007 99.08.04 1146 98-06902 94-98-00331 0.380 2.2 L 0 6.72 2.47 2.0 0.0008 2. ND 98.08.04 1154 98-06903 94-98-00331 0.380 2.2 L 0 6.72 2.47 2.0 0.0008 2. ND 98.08.13 1440 98-06925 94-98-00302 0.408 2.3 L 0 6.98 2.44 2.4 0.01  0.008 98.09.13 1410 98-0525 94-98-00300 0.408 2.3 L 0 6.98 2.25 2.4 0.01  0.01  0.008 98.09.09 1125 98-05428 94-98-00303 0.209 1.7 L 0 6.91 2.39 3.2 L 0 0.01  0.009 98.07.08 1131 98-05439 94-98-00303 0.209 1.7 L 0 6.74 2.39 3.2 L 0 0.01  0.009 98.07.08 1135 98-05439 94-98-00303 0.209 1.7 L 0 6.74 2.39 3.2 L 0 0.009 98.09.09 1.30 98-05859 94-98-00305 0.399 2.2 L 0 6.74 2.39 2.5 L 0 0.009 98.09.09 1.30 98-05859 94-98-00305 0.399 2.2 L 0 6.74 2.39 2.5 L 0 0.009 98.09.09 1.30 98-05859 94-98-00305 0.399 2.2 L 0 6.84 2.27 2.5 0.006 94-98-00305 0.399 0.391 2.2 L 0 6.84 2.27 2.5 0.006 94-98-00305 0.390 0.391 2.2 L 0 6.84 2.27 2.5 0.006 94-98-00305 0.395 2.9 L 0 6.84 2.24 2.6 0.009 ND. ND 0.009 98.09.13 1435 98-05859 94-98-00305 0.396 2.2 L 0 6.44 2.24 2.6 0.009 ND. ND 0.009 98.09.13 1435 98-05855 94-98-00305 0.396 2.2 L 0 6.44 2.24 2.6 0.009 0.009 98.09.09.13 1435 98-05855 94-98-00305 0.396 2.2 L 0 6.44 2.24 2.6 0.009 0.009 98.09.09.13 1439 98-05855 94-98-00305 0.396 2.2 L 0 6.44 2.24 2.6 0.009 0.009 98-09255 94-98-00305 0.396 2.2 L 0 6.44 2.24 2.6 0.009 0.009 0.009 98-09255 94-98-00305 0.396 2.2 L 0 6.44 2.24 2.6 0.009 0.009 0.009 0.009 98-09255 94-98-00305 0.396 2.2 L 0 6.44 2.24 2.6 0.009 0.009 0.009 0.009 98-09255 94-98-00305 0.396 0.395 0.3 |           | 98 08 04      | 1139     | 98-06900 | 94-98-00329   | 0.398 | 2.2       | _     | 0               | 6.95 | 2.33 | 2.0            |   | 0.006   | ND. ND                 | 579.                   | 579 |
| 96.06.04 1148 98-06902 94-98-00331 0.380 2.2 L 0 6.632 2.18 2.0 0.007<br>96.08.04 1154 98-06903 94-98-00302 0.376 2.3 L 0 6.53 2.47 2.0 0.008<br>96.09.13 14.05 98-06925 94-98-00406 0.401 2.4 L 0 6.96 2.44 2.4 0.01<br>96.09.13 14.05 98-06256 94-98-00408 0.409 2.3 L 0 6.96 2.24 2.4 0.01<br>96.09.13 14.10 98-05427 94-98-00408 0.409 2.3 L 0 6.98 2.25 2.4 0.01<br>96.07.08 1125 98-05428 94-98-00302 0.284 1.7 L 0 6.74 2.39 3.2 L 0.01<br>96.07.08 1125 98-05428 94-98-00303 0.290 1.7 L 0 6.74 2.39 3.2 L 0.009<br>96.07.08 1125 98-05696 94-98-00305 0.359 2.2 L 0 6.77 2.39 3.2 L 0.009<br>96.09.04 1222 98-06896 94-98-00325 0.359 2.2 L 0 6.75 2.3 2.5 C 0.009<br>96.09.13 1432 98-05897 94-98-00308 0.367 1.9 L 0 6.76 2.15 2.5 0.009<br>96.09.13 1432 98-05897 94-98-00402 0.366 2 L 0 6.76 2.15 2.6 0.009<br>96.09.13 1432 98-05859 94-98-00403 0.367 1.9 L 0 6.76 2.15 2.6 0.009<br>96.09.13 1435 98-05855 94-98-00403 0.367 1.9 L 0 6.76 2.15 2.6 0.009<br>96.09.13 1435 98-05855 94-98-00403 0.367 1.9 L 0 6.76 2.15 2.6 0.009<br>96.09.13 1435 98-05855 94-98-00403 0.367 2 L 0 6.44 2.24 2.6 0.009  |           | 98 08 04      | 1145     | 98-06901 | 94-98-00330   |       |           |       |                 |      |      | 2.0            |   |         |                        |                        |     |
| 96.09.14 1154 98-09323 94-98-00322 0.376 2.3 L 0 6.72 2.47 2.0 0.008 2. ND 96.09.13 14.05 98-09257 94-98-00406 0.401 2.4 L 0 6.93 2.42 2.4 0.009 2. ND 96.09.13 14.05 98-09259 94-98-00407 0.407 2.4 L 0 6.94 2.45 2.4 0.001 2.4 0.001 96.09.259 94-98-00407 0.407 2.4 L 0 6.94 2.25 2.4 0.001 96.09.13 14.02 98-09259 94-98-00408 0.408 2.3 L 0 6.94 2.25 2.4 0.011 96.09.13 14.32 98-05427 94-98-00302 0.264 11.7 L 0 6.81 2.39 3.2 L 0 9.94 96.09.13 14.25 98-05429 94-98-00302 0.259 11.7 L 0 6.74 2.39 3.2 L 0 9.95 96.06.14 12.5 98-05429 94-98-00305 0.359 2.2 L 0 6.74 2.39 3.2 L 0 0.005 96.06.14 12.25 98-06996 94-98-00305 0.348 2.2 L 0 6.84 2.27 2.5 0.005 96.06.14 12.20 98-06999 94-98-00302 0.366 2.2 L 0 6.84 2.27 2.5 0.005 96.09.13 14.35 98-06959 94-98-00402 0.366 2.1 L 0 6.76 2.15 2.6 0.009 NO. ND 98.09.13 14.35 98-09254 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 98-09254 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 98-09254 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 98-09255 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 98-09255 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 98-09255 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 98-09255 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 98-09255 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 98-09255 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 98-09255 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 98-09255 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.009 NO. ND 98.09.13 14.35 94-98-00403 0.361 2.1 L 0 6.74 2.24 2.6 0.000 NO. ND 98.09.13 14.35 0.000 NO. ND 98.09.13 14.35 0.000 NO. ND 98.09.13 |           | 98 08 04      | 1148     | 98-06902 | 94-98-00331   | 0.380 | 2.2       | _     | 0               | 6.82 | 2.18 | 2.0            |   | 0.007   |                        |                        |     |
| 98.09.13 1403 98-09257 94-98-00406 0.401 2.4 L 0 6.93 2.42 2.4 0.009 2. ND 98.09.13 1406 98-09259 94-98-00407 0.407 2.4 L 0 6.98 2.44 2.4 0.01   |           | 98.08.04      | 1154     | 98-06903 | 94-98-00332   | 0.376 | 2.3       | _     | 0               | 6.72 | 2.47 | 2.0            |   | 0.008   |                        |                        |     |
| 98.09.13         14.06         98-09258         94-98-00407         24         L         0         6.98         2.44         2.4         0.01           98.09.13         1410         98-09259         94-98-00408         0.408         2.3         L         0         6.98         2.44         2.4         0.01           98.09.13         1410         98-09260         94-98-00302         0.294         1.7         L         0         6.98         2.25         2.4         0.01           98.07.08         1125         94-98-00302         0.294         1.7         L         0         6.74         2.39         3.2         L         0.009           98.07.08         1125         94-06-03304         0.391         1.7         L         0         6.74         2.39         3.2         L         0.009           98.07.08         1125         94-06-03304         0.349         1.7         L         0         6.74         2.39         2.5         L         0         0.009           98.07.08         1125         94-06-0335         0.348         2.2         L         0         6.74         2.39         2.5         L         0         0.78         2.7  |           | 98.09.13      | 1403     | 98-09257 | 94-98-00406   | 0.401 | 24        | -1    | 0               | 6.93 | 2.42 | 2.4            |   | 0.000   |                        | 276,                   | *   |
| 96.09.13 1410 96-09259 94-96-00408 0.407 2.4 L 0 6.96 2.44 2.4 0.01 96.091 1412 96-09250 94-96-00409 0.408 2.3 L 0 6.96 2.25 2.4 0.01 0.01 96.0913 1432 96-05427 94-96-00302 0.284 1.7 L 0 6.81 2.39 3.2 L 0 96.091 96.05427 94-96-00302 0.284 1.7 L 0 6.81 2.39 3.2 L 0 96.091 96.05429 94-96-00304 0.391 1.7 L 0 6.74 2.39 3.2 L 0 96.091 96.05429 94-96-00305 0.359 2.2 L 0 6.77 2.39 2.5 L 0 0.009 96.05439 94-96-00305 0.346 2.2 L 0 6.77 2.39 2.5 L 0 0.005 96.0614 12.25 96-06896 94-96-00325 0.346 2.2 L 0 6.84 2.27 2.5 0.005 96.0613 1435 96-06899 94-96-00402 0.366 2 L 0 6.76 2.15 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.76 2.15 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.74 2.24 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 96-09255 94-96-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 94-09-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 94-09-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 94-09-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 94-09-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 94-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 94-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 NO, ND 96.09.13 1435 94-00403 0.361 2 L 0 6.44 2.24 2.6 0.000 NO, ND 96.09.13 1435 94-00403 0.361 2 L 0 6.44 2.24 2 |           | 98.09.13      | 1406     | 98-09258 | 94-98-00407   |       |           |       |                 |      |      | 2.4            |   |         |                        |                        |     |
| 96.09.13 1432 98-09260 94-98-00409 0.408 2.3 L 0 6.98 2.25 2.4 0.01 96.09.13 1432 98-05427 94-98-00302 0.264 1.7 L 0 6.81 2.39 3.2 L 0 96.07.08 1125 98-05428 94-98-00303 0.290 1.7 L 0 6.74 2.39 3.2 L 0 96.07.08 1125 98-05429 94-98-00305 0.349 1.7 L 0 6.77 2.39 3.2 L 0 96.07.08 1125 98-05429 94-98-00305 0.348 2.2 L 0 6.77 2.39 2.5 L 0 96.08.04 1225 94-98-00325 0.348 2.2 L 0 6.84 2.27 2.5 0.005 96.08.04 1239 98-06899 94-98-00402 0.366 2 L 0 6.85 2.33 2.5 0.005 96.09.13 1435 98-09254 94-98-00403 0.391 2 L 0 6.44 2.24 2.6 0.009 96.09.13 1435 98-09255 94-98-00403 0.391 2 L 0 6.44 2.24 2.6 0.009 96.09.13 1435 98-09255 94-98-00403  |           | 98.09.13      | 1410     | 98-09259 | 94-98-00408   | 0.407 | 2.4       | ٠     | 0               | 6.96 | 2.44 | 2.4            |   | 0.01    |                        |                        |     |
| 96.07.08 1118 98-05427 94-98-00302 0.284 1.7 L 0 6.81 2.39 3.2 L 0.016 98.07.08 1125 98-05428 94-98-00302 0.290 1.7 L 0 6.74 2.39 3.2 L 0.009 98.07.08 1125 98-05429 94-98-00304 0.391 1.7 L 0 6.74 2.39 3.2 L 0.009 98.07.08 1125 98-05430 94-98-00305 0.349 2.2 L 0 6.77 2.39 2.5 L 0.009 98.08.04 1225 98-06997 94-98-00328 0.349 2.2 L 0 6.77 2.39 2.5 L 0 0.009 98.08.04 1220 98-06999 94-98-00328 0.349 2.2 L 0 6.84 2.27 2.5 0.005 98.08.04 1230 98-06999 94-98-00402 0.365 2.2 L 0 6.85 2.33 2.5 0.005 98.08.04 1238 98-09253 94-98-00402 0.365 2 L 0 6.44 2.24 2.6 0.009 ND, ND 98.09.13 1435 98-09254 94-98-00403 0.391 2 L 0 6.44 2.24 2.6 0.009 ND, ND 98.09.13 1435 98-09255 94-98-00403  |           | 98.09.13      | 1432     | 98-09260 | 94-98-00409   | 0.408 | 2.3       | _     | 0               | 6.98 | 2.25 | 2.4            |   | 0.01    |                        |                        |     |
| 96.07.08 1125 96-05428 94-96-00303 0.290 1.7 L 0 6.74 239 3.2 L 0 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  | WALIK 2   | 90 07 08      | 1118     | 98-05427 | 94-98-00302   | 0.264 | 1.7       | _     | 0               | 6.81 | 2.39 | 3.2            |   | 0.016   |                        |                        |     |
| 1131 98-05429 94-98-00304 0.391 1.7 L 0 6.78 230 3.2 0.009<br>1125 98-05430 94-98-00325 0.349 2.2 L 0 6.84 2.27 2.5 L 0 ND. ND<br>1226 98-05896 94-98-00328 0.346 2.2 L 0 6.84 2.27 2.5 0.005<br>1239 98-05899 94-98-00328 0.367 1.9 L 0 6.85 2.33 2.5 0.005<br>1432 98-0325 94-98-00402 0.366 2 L 0 6.44 2.24 2.6 0.009 ND. ND<br>1439 98-0325 94-98-00404  | 4 1000    | OB 07 08      | 1126     | 98-05428 | 94-98-00303   | 0.290 | 1.7       | 7     | 0               | 6.74 | 2.39 | 3.2            | _ | 0       |                        |                        |     |
| 1222 98-08996 94-98-00325 0.359 2.2 L 0 6.77 2.39 2.5 L 0 ND, ND 1225 98-08997 94-98-00326 0.348 2.2 L 0 6.84 2.27 2.5 0.005 1.230 98-08999 94-98-00328 0.367 1.9 L 0 6.85 2.33 2.5 0.005 1.432 98-08253 94-98-00402 0.366 2 L 0 6.76 2.15 2.6 0.009 ND, ND 1432 98-08254 94-98-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 ND, ND 1439 98-03255 94-98-00404   |           | 98.07.08      | 1131     | 98-05429 | 94-98-00304   | 0.391 | 1.7       | _     | 0               | 6.78 | 2.30 | 3.2            |   | 0.009   |                        |                        |     |
| 1225 98-06897 94-98-003278 0.346 2.2 L 0 6.84 2.27 2.5 0.005<br>1230 98-06898 94-98-00328 0.367 1.9 L 0 6.85 2.33 2.5 0.005<br>1432 98-03253 94-98-00402 0.366 2 L 0 6.76 2.15 2.6 0.009 ND. ND<br>1435 98-03255 94-98-00404   |           | 20 00         |          | 30830-80 | 304.040.00325 | 0 369 | 22        | _     | 0               | 677  | 2.39 | 2.5            | 7 | 0       | ND. ND                 | 160,                   | -   |
| 1230 98-08896 94-98-00328 0.367 1.9 L 0 6.85 2.33 2.5 0.005 1.238 98-08253 94-98-00402 0.366 2 L 0 6.76 2.15 2.6 0.009 ND, ND 1432 98-08254 94-98-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 ND, ND 1435 98-08255 94-98-00403 0.361 2 L 0 6.44 2.24 2.6 0.009 ND, ND 1439 98-03255 94-98-00404  |           | 36.06.04      | 777      | 20-00030 | 92.000 00 00  | 0.348 | 23        | i _   |                 | 6.84 | 227  | 25             |   | 0 005   |                        |                        |     |
| 1238 98-08699 94-98-00328 0.367 1.9 L 0 6.85 2.33 2.5 0.005<br>1432 98-08253 94-98-00402 0.366 2 L 0 6.76 2.15 2.6 0.009 ND, ND<br>1435 98-03254 94-98-00403 0.361 2 L 0 6.44 2.24 2.6 0.008<br>1439 98-03255 94-98-00404  |           | 50.00         | 1220     | 98-06697 | 94-94-00327   | 2     | 4         | à     | )               |      |      | 2.5            |   |         |                        |                        |     |
| 1432 98-09253 94-98-00402 0.366 2 L 0 6.76 2.15 2.6 0.009 ND, ND 1435 98-09254 94-98-00403 0.361 2 L 0 6.44 2.24 2.6 0.008 1439 98-09255 94-98-00404   |           | 98.08.04      | 1238     | 98-06899 | 94-98-00328   | 0.367 | ej.       | _     | 0               | 6.85 | 2.33 | 25             |   | 0.005   |                        |                        |     |
| 1435 98-09254 94-98-00403 0.361 2 L 0 6.44 2.24 2.6<br>1439 98-09255 94-98-00404   |           | OB 00 13      | 1430     | 98-09253 | 94-98-00402   | 0.366 | 2         | -1    | 0               | 6.76 | 2.15 | 2.6            |   | 6000    | ND. ND                 | 114.                   | 4   |
| 1439 98-09256 94-88-00404  |           | 98.09.13      | 1435     | 98-09254 | 94-98-00403   | 0.361 | 2         | ۰     | 0               | 6.44 | 2.24 | 2.6            |   | 0.008   |                        |                        |     |
| The same of the sa |           | 98.09.13      | 1439     | 98-09255 | 94-98-00404   |       |           |       |                 |      |      | 2.6            |   | 9000    |                        |                        |     |

Appendix 5b (cont.). 1998 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| 1   280   70   70   70   70   70   70   70   | Values shown at | 28t0 (U) 18t0                            |          |                                  | Values shown as zero (U) renect no describe as use and service as use (U) renect no describe a renework as zero (U) renect no describe a renect no describe | E Ca      | Teb. | - 8        | T55  | N S | NH3 T | NO3 D | 0 % | ~ 6 | NO4<br>may as | TKN<br>maff as |      | T P  |   | HARD<br>mg/l as |  |
|--|-----------------|--|----------|----------------------------------|---|-----------|------|------------|------|-----|-------|-------|-----|-----|---------------|----------------|------|------|---|-----------------|--|
| Section   Continue   | Station #       | ylmld                                    | from ADT | 98                               | e Dial.   | MPN/100ml | NTC  | , §        | idue | -   |       | Z     |     |     | z             | Z              | i    | L    | 1 | CaC03           |  |
| Bellock  | SCR CNOS 1      | 98.07.08                                 | 0909     | 98-05424<br>98-05425<br>98-05426 | 94-96-00299<br>84-96-00300<br>94-96-00301   |           | 0.7  |            |      | 00  | 0.013 |       | 00  |     | 00            | 22             |      | 00   |   | 17.6            |  |
| 11.00   09-00   09-00   09-00-00-01   5, 11   0.9   T 5.4   0.01   L 0 |                 | 98.08.04                                 | 0975     | 96-06894                         | 94-96-00323   | NO. 1     | 0.7  | <b>⊢ ⊢</b> | 00   |     | 0.028 |       | 00  |     | 00            | 0.65           |      | 00   |   | 19.7            |  |
| 98 07 06 0840 98-05173 94-90-00281 -2 0 0 T 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0  |                 | 98.09.13<br>98.09.13                     | 1128     | 96-09251<br>96-09252             | 94-98-00401   | 5, 11     | 0.0  |            | 4 4  |     | 0.01  |       | 00  |     | 00            | 0.71           |      | 00   |   | 16.8            |  |
| 98.06.05   | SCR EGR 1       | 88 80 00 00 00 00 00 00 00 00 00 00 00 0 | 0840     | 98-05172<br>98-05173             | 94-98-00260<br>94-98-00281<br>94-98-00262   | 46        | 0 0  |            | 0 0  |     | 0 0   |       | 0 0 | د د | 0 0           |                |      | 0 00 |   | 12.0            |  |
| 96 08 05 08 09 09 09 09 09 09 09 09 09 09 09 09 09   |                 | 98.07.06                                 | 1020     | 98-05175                         | 94-96-00263   | G.        | 0 6  |            | 0 6  | _   | 0 0   | ٠. ٠  | 0 0 | د ب | 0 0           |                |      | 0 0  |   | 14.7            |  |
| 96.08.30 1231 98-08574 94-96-00374 ND, 1 0.2 T 0.02 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L  |                 | 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8            | 0952     | 98-07052<br>98-07053             | 94-98-00346<br>94-98-00347  | i         | 00   |            | 00   |     | 7100  |       | 00  |     | 00            | 00             |      | 00   |   | 14.0            |  |
| 96.08.30 1207 98-08575 94-98-00375 0.1 7 0.16 L 0 L 0 L 0 L 0 0.04 0.004 0.000 0.2 1211 98-08577 94-96-00376 0.2 7 0.2 L 0.1 0 L 0 L 0 L 0 L 0 0.04 0.004 0.000 0.2 1211 98-08577 94-96-00376 0.2 7 0.2 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L  |                 | 200                                      | 1303     | 98-08574                         | 94-98-00374   | ND. 1     | 0.2  | Şun        | 0.02 | ف   | 0     | _     | 0   | _   | 0             | 0.22           | 22   | 0    |   | 13.0            |  |
| 98 07 06 1122 99-05176 94-98-00265 -2 0 1 T 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0  |                 | 96.06.30                                 | 1207     | 98-08575<br>98-08576<br>98-08577 | 94-96-00375<br>94-96-00376<br>94-96-00377   |           | 0.1  | <b> </b>   | 0.16 |     | 00    |       | 00  |     | 080           | 0.20           |      | 00   |   | 13.0            |  |
| 96.07.06 1130 96-05177 94-90-00265 -2 0.1 T 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0  | 4 000 000       | 98 07 06                                 | 1122     | 98-05176                         | 94-98-00264   | 14        | 0    | <b> </b>   | 0    | ٦   | 0     | -     | 0   | -4  | 0             | 10             | _    | 0    |   | 12.2            |  |
| 96.06.05 1100 98-07056 94-98-00351 1. ND 0 0 0.011 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0   |                 | 96.07.06                                 | 1130     | 98-05177<br>98-05178<br>98-05179 | 94-98-00265<br>94-98-00266<br>94-98-00267   | Ç         | 0.0  | <b>j j</b> | 00   | _   | 000   |       | 00  |     | 00            | 00             |      | 00   |   | 122             |  |
| 99.08.05 1114 98-07057 94-98-00352 0 0 1 0.022 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0   |                 | 90.00                                    | 1100     | 98-07055                         | 94-98-00350   | J. ND     | 00   |            |      |     | 0.011 |       | 00  |     | 00            | 0.3            | 0.20 | 00   |   | 13.4            |  |
| 98.08.30 1318 98-08578 94-98-00379 NO. ND. ND. O.1 T 0.02 L 0 L 0 L 0 L 0 L 0 C 0 C 0 C 0 C 0 C 0  |                 | 8 98 98<br>8 98 98                       | 1114     | 98-07058                         | 94-96-00352   |           | 0    |            |      |     | 2000  | ۵     | 0   | _   | 0             | 9              | _    | 0    |   | 13.9            |  |
| 98.09.30 1324 98-08561 94-98-00381 0 T 0.34 L 0 L 0 L 0 L 0 L 0 C 0 0 0 0 0 0 0 0 0  |                 | 98.06.30                                 | 1318     | 98-08578                         | 94-96-00378   | NO. ND    | 0.1  | <b>j j</b> | 0.02 |     | 00    |       | 00  |     | 00            | 0.20           | 22   | 00   |   | 13.6            |  |
| 98.07.06 1655 98-05164 94-96-00272 2 0 T 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L   |                 | 96.06.30<br>96.06.30                     | 1324     | 98-08580                         | 94-98-00380   |           | 0    | -          | 0.34 | _   | 0     | _     | 0   | 4   | 0             | 0.22           | 2    | 0    |   | 13.0            |  |
| 98.07.06 1700 96-05185 94-98-00273 -2 0 T 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L  | SCB FGR 6       | 98.07.08                                 | 1665     | 98-05184                         | 94-98-00272   | 2         | 0    | ⊨          | 0    | _   | 0     | -d    | 0   | _   | 0             | 0.26           | 92   | 0    |   | 12.5            |  |
| 1447 96-06904 94-96-00333 ND. 1 0 T 0 L 0 L 0 L 0 L 0 L 0 L 1 1453 96-06905 94-98-00334 O T 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0  |                 | 96 07 06                                 | 1700     | 98-05186<br>98-05186<br>98-05187 | 94-98-00273   | Q         | 0 0  |            | 00   |     | 00    |       | 00  |     | 00            |                | 00   | 00   |   | 12.6            |  |
| 1456 96-06906 94-96-00335 0 T 0 0.01 L 0 L 0 L 1501 98-06907 94-96-00336 0 T 0   |                 | 888                                      | 1447     | 96-06904                         | 94-98-00333   | ND. 1     | 00   | <b></b>    | 00   |     | 00    |       | 00  |     | 00            | 0.32           | 33   | 00   |   | 13.7            |  |
|  |                 | 98 08 04                                 | 1456     | 96-06907                         | 94-98-00335   |           | 0    | -          | 0    |     | 0.01  | e-l   | 0   | ٠   | 0             | 2              | 0    | 0    |   | 13.0            |  |

Appendix 5b (cont.), 1998 St. Croix Lakes Study Field and Laboratory Data.
Values shown as zero (0) reflect no detectible value at the limit of quantification (see lest methods at end of table).

| Section   1125   Section   1129   Sect | Date   | Time<br>from ADT                     | 3  | Field   | MPN/100ml   | N S S       | E.E      | TSS<br>mg/l as<br>residue | X E      | NH3 T | NO E     | MO3 D<br>mp/ as | E | N N N | TKN<br>mg/l as | E        | mg/ as | mg/l as<br>CaCO3 |
|--|--|--------------------------------------|--|---|-------------|-------------|----------|---------------------------|----------|-------|----------|-----------------|---|-------|----------------|----------|--------|------------------|
| 1612   98-05191   94-69-00289   8   17   10   10   10   10   10   10   10  | 98 08 03<br>98 08 03<br>98 08 03             | 1126<br>1130<br>1134<br>1136         | 98-08916<br>98-08917<br>98-08918<br>98-08919 | 94-98-00390<br>94-98-00381<br>94-98-00382                               |             | 0 0 0       | p= p= p= | 95                        |          | 000   |          | 000             |   | 000   | 0.02           | 444      | 000    | 13.9             |
| 1922   1940-1981   244-80-00344   NO. 2   0.2   T   1   1   0   1   0   1   0   1   0   0  | 96.07.06<br>96.07.06<br>96.07.06             | 1804<br>1812<br>1815<br>1819         | 98-05191<br>98-05192<br>98-05193             | 94-96-00279<br>94-96-00280<br>94-96-00281<br>94-96-00282                | 60 ED       | 0 0 0 0 4 4 | j= j= j= | 0 00                      | ٠        | 0.015 |          | 0 00            |   | 0 00  | 0.38           |          | 0 00   | 14.4             |
| 12.22   98-03824   94-96-0398   NO   1   0.4   1   0.0   1   0   1   0   0   0.4   1   0   0   0   0.4   1   0   0   0   0   0   0   0   0   0   | 98.08.04<br>98.08.04<br>98.08.04             | 1608<br>1612<br>1615<br>1618         | 96-06912<br>96-06913<br>96-06914<br>96-06915 | 94-96-00341<br>94-96-00342<br>94-96-00343<br>94-96-00344                |             | 0.3         |          |                           |          | 0.012 |          | 00 0            |   | 00 0  | 0.30           |          | 00 0   | 8 8 8            |
| 1746   98-05189   94-98-00277   4   0.3   T   0   0.01   L   0   L   0   0.34   L   0   0   L   0   D   D   D   D   D   D   D   D   D  | 98.00.03<br>98.00.03<br>98.00.03             | 1232                                 | 98-08924<br>98-08925<br>58-08926             | 94-96-00398<br>94-96-00399<br>94-96-00400                               | ND. 1       | 0.3         |          | 0.00                      | -1 -1 -1 | 000   |          | 000             |   | 000   | 0.34           |          | 000    | 19.01            |
| 1541 99-08008 94-98-00339 1, ND  | 96.07.06<br>96.07.06<br>98.07.06             | 1730<br>1745<br>1749                 | 98-05188<br>98-05189<br>98-05190             | 94-96-00276<br>94-96-00277<br>94-96-00278                               | <b>10 4</b> | 0.3         |          | 000                       |          | 0.01  | -1 -1 -1 | 000             |   | 000   | 288            | -1 -1 -1 | 000    | 16.4             |
| 1211 98-08920 94-96-00394 ND, 2 0,2 T 0,32 L 0 L 0 L 0 L 0 L 0 0.34 L 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  | 96.06.04<br>40.06.04<br>96.06.04<br>96.06.04 | 1541<br>1544<br>1447<br>1550         | 98-06908<br>98-06909<br>98-06910<br>98-06911 | 94-96-00337<br>94-96-00338<br>94-96-00339<br>94-98-00340                | N. NO       | 0.0         |          | 00 0                      |          | 0.01  |          | 00 0            |   | 00 0  | 0.29           |          | 00 0   | 18.8             |
| 1423 98-05329 94-96-00296 <2 0.3 T 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0   | 96.09.03<br>96.09.03<br>96.09.03             | 1211<br>1214<br>1216<br>1219         | 98-08920<br>98-08921<br>98-08922             | 94-96-00394<br>94-96-00395<br>94-96-00396<br>94-96-00397                |             | 0.7         |          | 0.32                      |          | 00 0  |          | 00 0            |   | 00 0  | 0.34           |          | 00 0   | 19.5             |
| 1502 38-07063 94-98-00357 1, ND 0 T 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L  | 98.07.07<br>98.07.07<br>96.07.07             | 1423<br>1437<br>1440<br>1460         | 98-05328<br>98-05329<br>98-05330<br>98-05331 | 94-98-00295<br>94-98-00296<br>94-98-00297<br>84-98-00298                | 44          | 0.1         |          | 00 0                      | 44 4     | 00 0  |          | 00 0            |   |       |                | -1-1     | 00 0   | 10.1             |
| 0912 98-08912 94-98-00386 ND, ND 0.1 T 0.22 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 C 0 D D D D D D D D D D D D D D D D D  | 88 88 88 88 88 88 88 88 88 88 88 88 88       | 1502<br>1505<br>1510<br>1515<br>1526 | 38-07063<br>58-07064<br>58-07065<br>98-07066 | 94-96-00357<br>94-96-00358<br>94-96-00359<br>94-98-00360<br>94-98-00361 | ND. ND      | 000 0       |          | 000 +                     |          | 000 0 |          | 000 0           |   |       |                |          | 000 0  | 11.0             |
|  | 98.09.03<br>98.09.03<br>96.09.03             | 0912<br>0919<br>0926                 | 98-08912<br>98-08913<br>98-08914<br>98-08915 | 94-98-00386<br>94-98-00387<br>94-98-00388                               | ND, ND      | 0.0         |          | 0.02                      | -1-1     | 00 0  |          | 00 0            |   |       |                |          | 00 0   | 11.5             |

Appendix 5b (cont.): 1998 St. Croix Lakes Study Field and Laboratory Data.
Values shown as zero (0) reflect no defactible value at the limit of quantification (see test methods at end of tab.

| 98,0708   1320   99-05180   94-96-00289   4   0   0   0   0   0   0   0   0   0  | Station #  | Date                 | Time<br>from ADT | # qe                             | Field #                                   | E. Cali<br>MPN/100ml | NT S | E.S        | TSS<br>mg/l as<br>residue | Z E | MH3 T<br>mg/l as | N B   | NO3 D<br>mg/l as | 2   | NO4 NO4 | TKN<br>mg/l as | E     | mg/ as | HARD<br>mg/l as<br>CaCO3 | 03 80 |
|--|------------|----------------------|------------------|----------------------------------|---|----------------------|------|------------|---------------------------|-----|------------------|-------|------------------|-----|---------|----------------|-------|--------|--------------------------|-------|
| 8800706 1322 84-507059 94-9002234  | SCR SPED 1 | 98.07.06             | 1320             | 98-05180                         | 94-98-00268                               | 2 4                  | 0.2  | -          | 0                         | -1  | 0                | 7     | 0                | _   | 0       | 0.20           | ٦     | 0      | 11.2                     | 2     |
| Section   1725   Section   Section   Section   1250   S |            | 98.07.06             | 1335             | 98-05182                         | 94-96-00270                               |                      | 0.2  | <b>- -</b> | 00                        |     | 0.023            |       | 00               |     | 0.03    | 0.20           | -1 -1 | 00     | 10.3                     |       |
| Second   1350   94-07025   94-90-02354   14-46   96-02352   94-90-02354   14-46   96-02352   94-90-02354   14-46   96-02352   94-90-02354   14-90-02352   94-90-02354   14-90-02352   94-90-02354   14-90-02352   94-90-02354   14-90-02352   94-90-02354   14-90-02352   94-90-02354   14-90-02352   94-90-02354   14-90-02352   94-90-02354   14-90-02352   14-90-02352   14-90-02352   14-90-02352   14-90-02352   14-90-02352   14-90-02352   14-90-02352   14-90-02352   14-90-02352   14-90-02352   14-90-02352   14-90-02342   14-90-02352    |            | 98.08.05             | 1252             | 98-07059                         | 94-98-00353                               | ND, 1                | 0    | -          | 0                         | _   | 0                | _     | 0                | -4  | 0       | 0.22           | 7     | 0      | 12.0                     | 0     |
| 98 08 30 1446 99-08582 94-99-00393 NO, 2 02 T 0.26 L 0 L 0 L 0 L 0 L 0 C 0 C 0 C 0 C 0 C 0   |            | 88 88 88<br>88 88 88 | 1356             | 98-07061<br>98-07062             | 94-98-00354                               |                      | 00   | <b>  -</b> | 0+                        |     | 0.025            | -1 -1 | 00               | ي ب | 00      | 0.23           |       | 00     | 11.9                     | 0.0   |
| 98.08.09 11500 99-05324 94-98-00033  |            | 98.08.30             | 1446             | 98-08582                         | 94-96-00382                               |                      | 0.2  | -          | 0.26                      | ٦   | 0                | _     | 0                | -3  | 0       | 0.24           | -4    | 0      | 12.2                     | 2     |
| 98.07.07 1200 99-05324 94-99-00281 <2 02 T 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0   |            | 86.88                | 1503             | 98-08584<br>98-08585             | 94-96-00365<br>94-96-00365                |                      | 0.2  | $\vdash$   | 0.26                      |     | 0.021            |       | 00               |     | 00      | 0.28           | -1 -1 | 00     | 11.7                     | A 10  |
| 98.07.07 1221 98-05327 94-96-00234 05 T 0 0014 L 0 L 0 L 98.07.07 1221 98-05327 94-96-00234 05 T 0 0 1 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L   | SCR SPED 5 | 98.07.07             | 1200             | 98-05324                         | 94-98-00291                               | 01                   | 0.2  | <b>-</b>   | 0                         | -   | 0                | _     | 0                | -   | 0       | 0.24           | -4    | 0      | 89                       |       |
| 98.08.03 1207 98-06809 94-98-00315 ND, 1 0.2 T 1 0.011 L 0 L 0 L 99.08.03 1211 98-06809 94-98-00316 ND, 1 0.2 T 1 1 0.011 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0  |            | 98.07.07             | 1211             | 96-05326<br>96-05326<br>96-05327 | 94-98-00293<br>94-98-00293<br>94-98-00294 | 7                    | 0.3  |            | 00                        |     | 0.014            |       | 00               | دد  | 00      | 820            | -1-1  | 00     | Q) (Q)                   |       |
| 96.06.03 1277 96-06919 94-96-00316 0.2 T 1 0.011 L 0 L 0 L 0 0 L 0 0.000 1 1273 96-06911 94-96-00316 0.2 T 1 1 0.011 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0   |            | 98.08.03             | 1207             | 9890-96                          | 94-98-00315                               | ND, 1                | 0.2  | <b>-</b>   | -                         |     | 0.01             | _     | 0                | nd. | 0       | 0.23           | -1    | 0      | 10.1                     |       |
| 98.08.26 1245 98-08386 94-98-00371 1.1 0.2 T 0.26 L 0 L 0 L 0 L 99.08.26 1247 98-08387 94-98-00372 0.3 T 0.48 L 0.5 L 0 L 0 L 0 L 0 98.08.26 1251 98-08389 94-98-00373 0.5 T 0.5 T 0.5 D 0.056 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L   |            | 98.08.03<br>98.08.03 | 1217             | 98-06810<br>98-06811             | 94-98-00317<br>94-98-00318                |                      | 0.2  |            | gan gan                   |     | 0.011            | -1 -1 | 00               |     | 00      | 0.38           |       | 00     | 9.5                      |       |
| 96.08.26 1259 98-08389 94-98-00373 0.5 T 0.48 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L  |            | 98.08.26             | 1245             | 98-08386                         | 94-98-00370                               |                      | 0.2  | <b>-</b>   | 0.26                      | _   | 0                | _     | 0                | -4  | 0       | 0.20           | -4    | 0      | 9.5                      |       |
| 98.07.07 0951 99-05316 94-98-00283 <2 0.2 T 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0  |            | 96.08.26<br>96.08.26 | 1251             | 98-08388<br>98-08389             | 94-98-00373<br>94-98-00373                |                      | 0.3  | <b></b>    | 0.48                      |     | 0.056            |       | 00               | 7   | 0000    | 0.20           | -4 -4 | 00     | 10.7                     |       |
| 98.07.07 1003 99-05318 94-9-00256 0.3 T 6 0.011 L 0 L 9 0.017 1012 98-05318 94-9-00256 0.3 T 0 0.018 L 0 L 0 L 98.08.07 1012 98-05319 94-9-00311 1, 1 0 1 T 0 0.018 L 0 L 0 L 98.08.03 1104 98-06303 94-9-00311 1, 1 0 1 T 0 0.018 L 0 L 0 L 0 L 0 R 98.08.03 1104 98-08307 94-9-00313 0.1 T 0 0.1 T 0 0.012 L 0 L 0 L 0 R 98.08.03 1114 98-08308 94-98-00314 0.1 T 0 0 0.1 T 0 0 L 0 L 0 L 0 R 98.08.25 1006 94-98-00363 2, ND 0.2 T 0.06 L 0 L 0 L 0 L 0 R 98.08.25 1010 98-08309 94-98-00363 2, ND 0.3 T 0.06 L 0 L 0 L 0 L 0 R 98.08.25 1010 98-08309 94-98-00363 2, ND 0.3 T 0.06 L 0 L 0 L 0 L 0 R 98.08.25 1010 98-08309 94-98-00365 0.3 T 0.06 L 0 L 0 L 0 L 0 R 98.08.25 1010 98-08309 94-98-00365 0.3 T 0.06 L 0 L 0 L 0 L 0 R 98.07.07 1107 98-0323 94-98-00389 0.3 T 0.0 L 0 D D D D D D D D D D D D D D D D D   | SCR SPED 6 | 98.07.07             | 0947             | 98-05316                         | 94-98-00283                               | 00                   | 0.2  | <b>-</b>   | 0                         | _   | 0                | _     | 0                | _   | 0       | 0.22           | -1    | 0      | 10.01                    |       |
| 98 08 03 1104 98-0806 94-99-00311 1, 11 0.11 T 0 0.018 L 0 L 9 L 98 0.08 03 1104 98-0806 94-99-00312 1, 11 0.11 T 0 0.021 L 0 L 0 L 98 0.08 03 1104 98-08378 94-98-00313 0.11 T 0 0.012 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L  |            | 98.07.07             | 1003             | 98-05318<br>98-05319             | 94-98-00285<br>94-98-00286                |                      | 0.3  |            | 90                        | _   | 0.011            |       | 00               |     | 00      | 0.20           |       | 00     | (C) (C)                  |       |
| 98.08.03 1114 98-08379 94-98-00314 0.1 T 0 0.012 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L   |            | 98.08.03             | 1057             | 98-06804                         | 94-98-00311                               | ÷. ÷                 | 0.1  |            | 0 +                       | _ • | 0.018            |       | 00               |     | 00      | 0.28           | -1 -1 | 00     | 10.5                     |       |
| 98 06.26 1006 96-08378 94-96-00362 2.ND 0.2 T 0.06 L 0 L 0 L 0 L 9 L 9 L 9 L 9 L 9 L 9 L 9   |            | 96 06 03             | 1114             | 98-06807                         | 94-98-00314                               |                      | 0.1  | -          | 0                         |     | 0.012            | _     | 0                | 4   | 0       | 0.22           | _     | 0      | 10.8                     |       |
| 98 06.26 1010 98-08381 94-98-00364 0.3 T 0.06 L 0 L 0 L 0 L 9 L 98 06.26 1013 98-08381 94-98-00365 0.3 T 0.6 L 0 L 0 L 0 L 9 L 98 07.07 1107 98-05320 94-98-00288 <2 0.1 T 0 L 0 L 0 L 0 L 9 C 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   |            | 98 08 26             | 1004             | 98-08378                         | 94-98-00362                               | 2. ND                | 0.2  | -          | 90.0                      | _   | 0                |       | 0                | _   |         | 0 7            | 7     | 0      | 10.7                     |       |
| 98 07 07 1107 98-05320 94-98-00287 <2 0.1 T 0 L 0 L 0 L 0 L 0 L 0 L 98 07 07 1111 98-05321 94-98-00288 <2 0.1 T 0 L 0 L 0 L 0 L 0 98 07 07 1118 98-05323 94-98-00289 0.1 T 0 0015 L 0 L 0 98 07 07 1118 98-05323 94-98-00289 0.1 T 0 0027 L 0 L  |            | 86 98 98<br>88 98 98 | 1010             | 38-08380<br>38-08381             | 94-96-00365<br>94-96-00365                |                      | 0.3  |            | 9.00                      |     | 00               |       | 00               |     |         | 00             |       | 00     | 11.0                     |       |
| 1118 98-0532 94-98-00289 0.1 T 0 0.015 L 0 L 98-05323 94-98-00290 0.1 T 0 0.027 L 0 L  | SCR SPED 7 | 96.07.07             | 1107             | 98-05320                         | 94-98-00287                               | 61                   | 0.1  | <b>-</b>   | 0                         | _   | 0                | _     | 0                | _   | 0       | 0.22           | _     | 0      | 7.9                      |       |
|  |            | 96 07 07             | 1118             | 96-05322                         | 94-98-00290<br>94-98-00290                | *                    | 0.0  |            | 00                        |     | 0.015            |       | 00               |     | 00      | 0.25           |       | 00     | 7.9                      |       |

Appendix 5b (cont.). 1998 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see lest methods at end of table).

| Station #  | Date<br>y/m/d | from ADT | Lab                  | Field #                                 | E. Coli<br>MPN/100ml | Turb<br>ass<br>NTU | € 5        | TSS<br>mg/l as<br>residue | 2 E | nH3 T<br>mg/l as | X E | NO3 D<br>mg/l as | -   | NO4 NO4 NO4 | E  | TKN<br>Se light | E   | F mg/l as | HARD<br>mg/l as |
|------------|---------------|----------|----------------------|---|----------------------|--------------------|------------|---------------------------|-----|------------------|-----|------------------|-----|-------------|----|-----------------|-----|-----------|-----------------|
|            | 98.08.03      | 1400     | 98-06812             | 94-98-00319                             | 2, ND                | 0                  | -          | 0                         | _   | 0                | -4  | 0                | 1 - | 0           |    | 0.24            | 1   | 10        | 8.0             |
|            | 96.06.03      | 1409     | 98-06814             | 94-98-00321                             |                      | 00                 | <b>⊢</b> ⊢ | 00                        |     | 0.012            | ب ب | 00               |     | 00          |    | 0.21            | ٠.  | 0         | 80 E            |
|            | 98.08.26      | 1132     | 98-08382             | 94-9R-00-86-                            | C C C C              | 0                  |            |                           |     |                  |     | )                | 3   | •           |    | 17.0            | 1   | 0         | 99              |
|            | 98.08.26      | 1135     | 98-08383             | 94-98-00367                             |                      | 0.0                |            | 0.06                      |     | 00               |     | 00               | ٠.  | 0           | ٦  | 0               | _   | 0         | 8.6             |
|            | 86.08.26      | E :      | 98-08384             | 94-96-00368                             |                      |                    |            | 3                         | i   | 0                | _   | 0                | _   | 0           | _  | 0               | ٦   | 0         | 8.4             |
|            | 98.08.28      | 1140     | 58-08385             | 94-98-00369                             |                      | 0                  | <b>—</b>   | 0.02                      | ۰   | 0                | _   | 0                | -4  | 0           | -1 | 0               | _   | 0         | 9.5             |
| SCR WAUK 1 | 96.07.08      | 1158     | 98-05431             | 94-98-00306                             |                      | 60                 | 1          | c                         |     | 000              |     |                  |     |             |    |                 |     |           |                 |
|            | 8.679.88      | 1205     | 98-05432             | 94-98-00307                             |                      | 0.3                | -          | ) <del>-</del>            |     | 0.011            |     | 00               |     | 00          |    | 0.34            | ٠.  | 00        | 6.7             |
|            | 98 07 08      | 1158     | 96-05433             | 94-98-00308                             |                      |                    |            |                           |     |                  | ,   | ,                |     | 0           |    | 0.31            | _   | 0         | 7.1             |
|            | 98.07.08      | 1225     | 98-05435             | 94-98-00309                             |                      | 4.0                | <b>⊢</b> 1 | -                         |     | 0.018            | ۷   | 0                | _   | 0           |    | 0.35            | _   | 0         | 7.8             |
|            |               |          |                      | 01000000                                |                      | 4.0                | -          | -                         |     | 0.036            | ے   | 0                | ف   | 0           |    | 0.29            | _   | 00        | 8.0             |
|            | 98.08.04      | 1139     | 98-06901             | 94-98-00329                             | ND. 1                | 0.3                | <b>-</b>   | -                         |     | 0.011            | _   | 0                | _3  | 0           |    | 0.34            | _   | C         | 7.4             |
|            | 98.08.04      | 1148     | 98-06902             | 94-98-00331                             |                      | 03                 | -          | c                         |     | 000              |     |                  |     |             |    |                 |     |           |                 |
|            | 98.08.04      | 1154     | 98-06903             | 94-96-00332                             |                      | 0.5                |            | 2 0                       |     | 0.012            | ب د | 00               |     | 00          |    | 0.33            |     | 00        | 7.4             |
|            | 98 09 13      | 1403     | 500000               | 04.00.00.00                             |                      |                    |            |                           |     |                  |     | ,                | 3   | )           |    | 3               | _   | 0         | 9.              |
|            | 98.09.13      | 1406     | 98-09258             | 94-96-00407                             | ri<br>m              | 0.8                | -          | 0.8                       | _   | 0                | _   | 0                | _   | 0           |    | 0.36            | _   | 0         | 97              |
|            | 96.09.13      | 1430     | 98-09259             | 94-98-00408                             |                      | 6.0                | <u></u>    | 1.3                       | _   | 0                | _   | 0                | -4  | 0           |    | 0.40            | -   |           | 0               |
|            |               |          | 00760-00             | 34-36-00409                             |                      | E.)                | <b>—</b>   | 1.2                       | _   | 0                | -4  | 0                | _   | 0           |    | 0.35            |     | 00        | 0.00            |
| CR WAUK 2  | 96.07.08      | 1118     | 98-05427             | 94-98-00302                             |                      | 60                 | +          | c                         |     |                  |     |                  |     |             |    |                 |     |           |                 |
|            | 98.07.08      | 1125     | 98-05428             | 94-98-00303                             |                      | 0 0                | - }-       |                           |     | 0 0              |     | 0 0              |     | 0           |    | 92.0            |     | 0         | 0.9             |
|            | 96.07.08      | 1131     | 98-05429<br>98-05430 | 94-96-00304                             |                      | 0.3                | -          |                           | 0   | 0.011            |     | 00               |     | 00          |    | 0.26            |     | 00        | 6.2             |
|            | 98.08.04      | 1222     | 98-06896             | 94-98-00325                             | ND. ND               | 00                 | -          |                           | -   | •                |     |                  |     |             |    |                 |     |           |                 |
|            | 98.08.04      | 1225     | 28-06897             | 94-98-00326                             |                      | 0.2                |            |                           |     | 000              | 4   | 00               | ٠.  | 00          | 0  | 0.26            | 0 7 |           | 9.6             |
|            | 38.08.04      | 1230     | 96-06898             | 94-98-00327                             |                      |                    |            |                           | )   |                  | _   | 0                | 7   |             | 0  |                 |     |           | 7.9             |
|            | 36.06.04      | 1738     | 98-06899             | 94-98-00328                             |                      | 0.2                | <b>}</b>   | -                         | 0   | 0.01             | _   | 0                | -   | 0           | 0  | 0.30            | 0 7 |           | 6.9             |
|            | 98.09.13      | 1432     | 98-09253             | 94-96-00402                             | ND. 1                | 4.0                | -          | 13                        |     |                  |     |                  |     |             |    |                 |     |           |                 |
|            | 98.09.13      | 1435     | 98-09254             | 94-98-00403                             |                      | 0.4                | -          | 13                        |     | 00               |     | 00               | 00  |             | 00 | 0.31            | 00  |           | 7.1             |
|            | 98.09.13      |          | 98-09256             | 94-98-00404                             |                      | ,                  | ,          |                           |     |                  |     |                  |     |             | )  |                 |     |           | n<br>o          |
|            |               |          |                      | 200000000000000000000000000000000000000 |                      | 4.0                | _          | 1.1                       |     | 0                | 7   | 0                | 7   | -           | 0  | 0.34            | 0 7 |           | 7.1             |

Appendix 5b (cont.), 1998 St. Croix Lakes Study Fletd and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| Station #  | Date                                      | Time<br>from ADT     | * de.                            | Field #                                   | No. A.         | AS AS | 8   | 8 8 | 9     | 2 2 CR | 3     | 3 % 3 | E     | mg/l as<br>Fe | MG-D<br>mg/l as | E    | MN Mn | Se l'a | 252 |
|------------|---|----------------------|----------------------------------|---|----------------|-------|-----|-----|-------|--------|-------|-------|-------|---------------|-----------------|------|-------|--------|-----|
| SCR CNOS 1 | 96.07.08<br>96.07.08                      | 0908<br>0916<br>0920 | 98-05424<br>98-05425<br>98-05426 | 94-98-00299<br>94-98-00300<br>94-98-00301 | 6.69           |       | 00  | 00  |       | 00     | ٦     | 0 %   | - 0   | 0.16          | 0.1             |      | 0.031 |        | 00  |
|            | 98.08.04                                  | 0919                 | 38-06894<br>38-06895             | 94-98-00323                               | 55.7           |       | 00  | 00  |       | 0.0    | 4     | 0.07  | 90    | 0.16          | 44              |      | 0.014 | -4 -4  | 00  |
|            | 98.06.13<br>98.06.13                      | 22                   | 98-09251<br>98-09252             | 94-98-00401<br>94-58-00401                | 71.0           |       | 00  | 00  |       | 00     |       | 00    | 0.0   | 0.14          | 11              |      | 0.017 |        | 00  |
| SCR EGR 1  | 96.07.06                                  | 0940                 | 98-05172                         | 94-98-00260                               | 0,             | 1     | 0   | 0   | ٦     | 0      | _     | 0     | -d    | 0             | 9.0             | -4   | 0     | - de   | 9   |
|            | 98.07.06                                  | 1020                 | 98-05174                         | 94-98-00262<br>94-98-00263                | 9.9            |       | 00  | 00  |       | 00     |       | 00    | -4-4  | 00            | 9.0             |      | 00    | -1 -1  | 00  |
|            | 98.08.05                                  | 0948                 | 98-07051                         | 94-98-00345                               | 9.6            | 7     | 7 0 | 0   | 9     | 0      |       | 1.4   | 7     | 0             | 6.0             | _    | 0     | -3     | 0   |
|            | 98.08.05                                  | 1001                 | 98-07053                         | 94-96-00347<br>94-96-00348                | 11.0           | 11    | 00  | 00  | - L-  | 00     |       | 8.0   | -1 -4 | 00            | 0.8             |      | 00    | ٠.     | 00  |
|            | 98.08.30                                  | 1203                 | 98-08574                         | 94-98-00374                               | 0.9            | 1     | 0   | C   |       | 0.8    | _     | 0     | -     | 0             | 9.0             | _    | 0     | -J     | 0   |
|            | 98.08.30<br>98.08.30                      | 1211                 | 96-08576                         | 94-98-00376                               | 9.3            | 77    |     | 00  |       | 0.0    | -4    | 2.0   | -1-1  | 00            | 9.0             | _    | 0.017 |        | 00  |
| SCR EGR 4  | 96.07.06                                  | 1122                 | 98-05176                         | 94-96-00264                               | 4.             | - 0   | _   | 0   | _     | 0      | _     | 0     | -1    | 0             | 9.0             | -4   | 0     | -4     | 0   |
|            | 98.07.06                                  | 1139                 | 98-05178<br>98-05179             | 94-98-00266                               | 80 B)          | 11    |     | 00  | -1 -1 | 00     | -1 -1 | 00    |       | 00            | 9.0             |      | 00    |        | 00  |
|            | 98 08 06                                  | 00111                | 98-07055<br>98-07056             | 94-98-00350<br>94-98-00351                | 7.8            | 00    |     | 00  | -0 -0 | 00     |       | 00    | 11    | 00            | 0.7             | -1-1 | 00    | -1 -1  | 00  |
|            | 36.06.05                                  | 1119                 | 36-07058                         | 94-98-00353                               | 10.9           | L 0   | -0  | 0   | ud    | 0      | _     | 0     | -     | 0             | 0.7             | 0    | 0.013 | -      | 0   |
|            | 00 00 00 00 00 00 00 00 00 00 00 00 00    | 1318                 | 98-08578                         | 94-98-00378<br>94-98-00379                | 7.4            | 00    |     | 00  |       | 00     | -4    | 2.0   | 00    | 00            | 0.0             |      | 00    |        | 00  |
|            | 8 8 30                                    | 1328                 | 98-08581                         | 94-96-00381                               | 6.7            | 0     | 7   | 0   | -1    | 0      | -1    | 0     | 0     |               | 9.0             | _    | 0     | _      | 0   |
| SCR EGR 6  | 96 07.06                                  | 3650                 | 98-05184                         | 94-98-00272                               | 12.8           | L 0   | 7   | 0   | -3    | 0      | and . | 0     | 0     |               | 9.0             | -4   | 0     | ed.    | 0   |
|            | 98 07 06<br>98 07 06                      | 1706                 | 98-05186<br>98-05187             | 94-96-00274                               | 85 85<br>85 85 | 00    | 7 7 | 00  |       | 00     |       | 00    | 00    |               | 0.0             |      | 00    |        | 00  |
|            | 70 90 90 90 90 90 90 90 90 90 90 90 90 90 | 1447                 | 98-06904<br>98-06905             | 94-98-00333<br>94-98-00334                | 10.3           | 00    | -3  | 00  |       | 200    |       | 00    | 00    |               | 88              |      | 00    |        | 00  |
|            | 20 90 96<br>20 90 96                      |                      |                                  | 94-98-00336                               | 9 6            | 0     | -3  | 0   |       | 13     | _0    | 0     | 0     |               | 90 0            | _    | 0     | ۰      | 0   |

Appendix 5b (cont.), 1998 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| i          | Date<br>y/m/d                    | Time<br>from ADT | Lab                              | Field #                                   | 15 × | As As |     | 5 5 5 | 3      | 2 5 C | 8 3  |     | 3 S   | 1      | mg/l as | 6.2  | mg/ as | 10 Z  |
|------------|----------------------------------|------------------|----------------------------------|---|------|-------|-----|-------|--------|-------|------|-----|-------|--------|---------|------|--------|-------|
|            | 98.09.03                         | 1126             | 98-08916                         | 94-98-00390                               | 7.1  |       |     |       |        | 00    | ٠,   | 00  | ٦.    | 00     | 90      |      | 00     |       |
|            | 98 98 98<br>98 98 93             | 1130             | 98-08917<br>98-08918<br>98-08918 | 94-98-00392<br>94-98-00392<br>94-98-00393 | 200  | 77    |     | 00    |        | 00    |      | 00  |       | 0      | 0.7     | 1 -1 | 0      | -     |
| o num and  | 8070                             | 1904             | 98-05191                         | 94-98-00279                               | 34.0 | ٦     | 0   | 0     | -1     | 0     | ب    | 0   | 0.0   | 770.0  | 7.0     |      | 0.023  | _     |
|            | 98.07.06                         | 1812             | 98-05192<br>98-05193             | 94-98-00280                               | 31.6 | ٦     | 0   | 0     | ٦      | 0     |      | 0.7 | 0     | 0.069  | 0.7     |      | 0.027  | ٠.    |
|            | 96.07.06                         | 1819             | 98-05194                         | 94-98-00282                               | 26.7 |       |     |       | _      | 0     | -    | 0   | 0     | 0.004  | 0.7     |      | 0.023  | 4     |
|            | 96.06.04                         | 1608             | 96-06912<br>96-06913             | 94-98-00341                               | 3.38 |       | 00  | 00    |        | 1.9   |      | 00  | 00    | 0.068  | 0.8     |      | 0.038  |       |
|            | 98.08.04                         | 1618             | 96-06914<br>96-06915             | 94-98-00343                               | 27.4 | ٦     | 0   | 0     |        | 1.9   | -    | 0   | 0     | 0.068  | 6.0     |      | 0.041  | -1    |
|            | 98.09.03                         | 1232             | 96-08924                         | 94-96-00398                               | 24.4 |       | 0   | 00    |        | 0.5   |      | 00  | 7     | 0 0000 | 0.8     |      | 0.026  |       |
|            | 98.09.03<br>98.09.03             | 1242             | 92680-96                         | 94-96-00400                               | 16.8 |       | 77  |       | _      | 0     | _    | 0   | 7     | 0      | 6.0     |      | 0.017  | -1    |
| SCR NTH 2  | 98.07.06                         | 1730             | 98-05188                         | 94-98-00276                               | 24.5 |       | 0.0 | 00    |        | 00    | -    | 000 | 00    | 0.061  | 0.0     |      | 0.025  |       |
|            | 90.07.06                         | 1745             | 98-05189<br>98-05190             | 94-96-00278                               | 24.8 |       |     |       |        | 00    | call | 6   | 0     | 051    | 0.7     |      | 0.024  | -     |
|            | 98.08.04                         | 154              | 90690-96                         | 94-98-00337                               | 23.7 |       | 00  | 00    |        | 1.9   | -    | 6.0 | 00    | 0.05   | 90      |      | 0.06   |       |
|            | 96.08.04                         | 1550             | 98-06910<br>98-06911             | 94-98-00340                               | 26.6 | 7     | 0   | 0     |        | 2.0   | 7    | 0   | 0     | 0.65   | 8.0     |      | 0.065  | -     |
|            | 98.09.03                         | 1211             | 98-08920                         | 94-98-00394                               | 14.2 |       | 00  | 00    |        | 1.0   | -    | 2.3 | 00    | 0.063  | 0.8     |      | 0.022  |       |
|            | 98.09.03                         | 1216             | 98-08922                         | 94-98-00396                               | 16.5 | 7     | 0   | 0 7   |        | 9.0   | -    | 0   | 7     | 0      | 8.0     |      | 0.029  | _     |
| SCR SKIF 1 | 98.07.07                         | 1423             | 98-05328                         | 94-98-00295                               | 7.2  |       | 00  | 00    |        | 00    |      | 3.6 | -1 -1 | 00     | 0.4     | ب ب  | 00     | -1 -1 |
|            | 98.07.07                         | 1440             | 96-05330                         | 94-98-00298                               | 89   | _     | 0   | 0     | _      | 0     | -1   | 0   | -     | 0      | 9.0     | ud   | 0      | -4    |
|            | 88 88 88<br>82 82 82<br>82 82 82 | 1502             | 96-07063<br>96-07064<br>96-07065 | 94-98-00357<br>94-98-00358<br>94-98-00359 | 5.8  |       | 000 | 000   | -1-1-1 | 000   |      | 000 |       | 000    | 0.5     |      | 000    |       |
|            | 98.08.05                         | 1515             | 96-07066                         | 94-98-00360                               | 7.9  | ٦     | 0   | 0 7   | -4     | 0     |      | 6.0 |       | 0      | 0.5     |      | 0.03   | ed.   |
|            | 96.09.03                         | 0912             | 98-08912                         | 94-96-00386                               | 3.2  |       | 00  | 00    |        | 00    | 4    | 1.5 | 77    | 00     | 0.5     |      | 00     | 44    |
|            | 98 09 03                         | 0820             | 98-08914                         | 94-98-00386                               | 3.4  | نہ    | 0   | 0     | ٠      | 0     |      | 1.0 | _2    | 0      | 0.4     | ud   | 0      | ud.   |

Appendix 5b (cont.). 1998 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| alues shown as 2<br>Station # | Date     | Time     | - P                  | Values shown as zero (u) refrect no detection | Ak<br>ug/l as | AS Ngu as |     | 8 5 | 86 CR |     | 25 20 | E   | mg/l as | MG-D<br>mg/l as | E     | MN mg/l as | Mg/ as |    |
|-------------------------------|----------|----------|----------------------|---|---------------|-----------|-----|-----|-------|-----|-------|-----|---------|-----------------|-------|------------|--------|----|
|                               | p/m/k    | from ADI |                      |   |               |           | 1   |     |       |     |       |     | •       | 80              | -     | C          | 1      | 0  |
| SCR SPED 1                    | 98.07.06 | 1320     | 98-05180             | 94-98-00268   | 26.1          | 0 7       | _   | 0   | L 0   |     | 0     | -   | 0       | 0               |       | ,          |        |    |
|                               | 98.07.06 | 1325     | 98-05181             | 94-98-00269   | 22.1          | 0         | 7   | 0   | 1 0   |     | 0.8   | _   | 0       | 0.5             |       | 0.011      | ٠.     | 00 |
|                               | 98:07:06 | 1346     | 98-05183             | 94-98-00271   | 33.3          | L 0       | -   | 0   | 0 7   |     | 0 7   | _   | 0       | 0.5             |       | 0.022      |        | ,  |
|                               |          | 6960     | 09 07050             | 94.98.00753   | 16.5          | 0         | 7   | 0   | L 0   |     | 0 7   | -1  | 0       | 9.0             | _     | 0          | -      | 0  |
|                               | 38.08.09 | 1367     | 98-07080             | 94-98-00354   |               |           |     |     |       |     |       |     |         | 10              |       | 000        | -      | 0  |
|                               | 98.08.05 | 1300     | 98-07061             | 94-98-00355   | 20.0          | L 0       | 7   | 0   | ٥,    |     | 5.0   |     | 0 0     | 0.0             |       | 0.049      |        | 0  |
|                               | 38.08.05 | 1356     | 98-07062             | 94-96-00354   | 23.6          | L 0       | 7   | 0   | 7     |     | 9     | j   | •       |                 |       |            |        |    |
|                               | -        | 2777     | Canan an             | 04.08.00782   | 15.8          | L 0       | L   | 0   | L 0   |     | 0 7   | ٦   | 0       | 9.0             | -     | 0          | _      | 0  |
|                               | 98.08.30 | 1440     | 30-00302<br>08-08583 | 94-98-00383   |               |           |     |     |       |     |       |     |         |                 |       | c          | -      | c  |
|                               | 86.89.99 | 1458     | 98-08584             | 94-96-00384   | 13.9          | ٥,        | 7-  | 00  | 00    |     | 000   | _   | 0.091   | 0 0             |       | 0.104      | - 1    | 0  |
|                               | 98.08.30 | 1503     | 98-08585             | 94-96-00365   | 6.13          |           |     |     |       |     |       |     |         |                 |       |            |        |    |
|                               |          |          |                      |   | 5             |           | -   | C   | 0     | _   | 0     |     |         | 0.5             | ٦     | 0          | ed.    | 0  |
| SCR SPED 5                    | 98.07.07 | 1200     | 98-05324             | 94-98-00291   | 1.00          |           |     | ,   |       |     |       |     |         |                 |       |            |        | (  |
|                               | 98.07.07 | 1211     | 98-05326             | 94-96-00293   | 33.6          | 7         | 0   | 0   | ٦.    |     | 00    |     | 00      | 0.5             |       | 0.018      |        | 00 |
|                               | 98.07.07 | 1220     | 98-05327             | 94-98-00294   | 37.0          | 1         | 2   | 0   | ٦ 0   |     | 2     | 1   | >       |                 |       |            |        |    |
|                               | 2000     | 2002     | GALDISADA            | 94-98-00315   | 22.8          | 7         | 0   | 0   | ٦ ,   | 0   | 0 7   | -1  | 0       | 0.4             |       | 0.013      | _      | 0  |
|                               | 20.00.00 | 1211     | 98-06809             | 94-98-00316   |               |           |     |     |       |     |       |     | •       | 40              |       | 0.013      | -      | 0  |
|                               | 98 08 03 | 1217     | 98-06810             | 94-98-00317   | 22.2          |           | 0   | 0 0 | ٠.    | 00  | 90.0  |     | 0.00    | 0.0             |       | 0.026      | _      | 0  |
|                               | 98.06.03 | 1223     | 98-06811             | 94-98-00318   | 22.8          | 7         | 0   | 0   |       |     | 2     |     |         |                 | 4     |            |        |    |
|                               | OR 08 26 | 1245     | 98-08386             | 94-98-00370   | 19.2          | 1         | 0   | 0   | 1     | -   | 0 7   | -   | 0       | 0.5             |       | D          | ٥      | 0  |
|                               | 98.08.26 | 1247     | 98-08387             | 94-96-00371   | 0 70          | -         | -   | C   | -     | *   | 0     | -   | 0       | 9.0             |       | 0.016      | . I.   | 00 |
|                               | 98.08.26 | 1251     | 98-08388             | 94-96-00373   | 31.0          |           | 0   | 0   | -     | 1.6 | 1.1   |     | 0.144   | 0.4             |       | 0.231      | 4      | 0  |
|                               |          |          |                      |   |               |           |     |     |       |     |       | -   | c       | 0.5             | -     | 0          |        | 0  |
| SCO SPENA                     | 98.07.07 | 0947     | 96-05316             | 94-98-00283   | 25.9          | _         | 0   | 0   |       | 0   |       | j.  | ,       |                 |       |            |        |    |
|                               | 98.07.07 | 10001    | 98-05318             | 94-98-00284   | 25.8          | _         | 0   | 0   | ١.    | 0   | 0 0   |     | 00      | 0.5             | -1    | 0.024      |        | 00 |
|                               | 96.07.07 | 1012     | 98-05319             | 94-98-00286   | 29.7          |           | 0   | 0   |       | 2   |       | J   | )       |                 |       |            |        |    |
|                               |          | 1067     | OB DEBOA             | 94.98.00311   | 17.1          | -         | 0   | 0   | 1     | 0   | L 0   | -4. | 0       | 0.5             | -     | 0.012      |        | 00 |
|                               | 20.00    | 100      | 98-06805             | 94-98-00312   | 17.3          | 7         | 0 6 | 0   |       | 0   | 4.0   | -   | 0       | 0               |       | ,          | i.     |    |
|                               | 50 90 96 | 1107     | 98-06806             | 94-98-00313   | 200           | -         | 0   | 0   | 0     | 9   | 1.2   | -   | 0       | 0.5             |       | 0.014      | -      | 0  |
|                               | 98.08.03 | 1114     | /0990-86             | #-28-00-a   | 7             | ,         |     |     |       |     |       |     |         | 96              | - Car | 0          | -      | 0  |
|                               | 98 08 26 | 100      | 98-06378             | 94-98-00362   | 18.0          | ٦         | 0   | 0   | -     | 6   | 9     | -8  | 9       | 0.0             | â     | •          | 9      | ,  |
|                               | 98.08.26 | 1006     | 96-06379             | 94-98-00363   |               |           |     | C   |       | 1.1 | 0 7   | 7   | 0       | 9.0             | _     | 0          | . ن    | 0  |
|                               | 98.08.26 | 1010     | 98-08380             | 94-96-00304   | 20.00         |           | 00  | 0   | · One | 1.2 | 0 7   | _   | 0       | 9.0             |       | 0.013      | -      | 0  |
|                               | 98 08 26 | 1013     | 58-08381             | 94-38-00363   | 73.0          |           | ,   | ,   |       |     |       |     |         |                 |       |            |        |    |
|                               |          | 2000     | 000000               | 04.08.00287   | 36.8          | 1         | 0 1 | 0   | 7     | 0   | 0 7   |     |         | 0.4             | _     | 0          | 7      | 0  |
| SCR SPED 7                    | 98.07.07 | 1110     | 98-05321             | 94-98-00288   |               |           |     |     |       |     |       |     | c       | 40              |       | 0.026      | -4     | 0  |
|                               | 28.07.07 | 1118     | 98-05322             | 94-98-00289   | 41.9          |           | 00  | 00  |       | 00  | 0.0   |     | 00      | 0.4             |       | 0.043      | and I  | 0  |
|                               | 98 07 07 |          | 98-05323             | 94-98-00230   | 425           | -         |     |     |       | ,   |       |     |         |                 |       |            |        |    |

Appendix 5b (cont.), 1998 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| SCR WALKER   SECRET 1420   SECRET 2 94-86-000019   SCR & L. O. L. O. L. O. C. O. O. O. D. L. O. C. O.  | Station # | Date<br>y/m/d        | Time<br>from ADT | * 681     | Field #                                  | 1 1 1 N | As As | 1   | 9 3 | i  | 5 5 C | 30  | 2 2 3 | mg/l as |      | MG-D<br>mg/ as | E | Mn Mn | S JON | 3 5 5 |
|--|-----------|----------------------|------------------|-----------|--|---------|-------|-----|-----|----|-------|-----|-------|---------|------|----------------|---|-------|-------|-------|
| Section   Table   Section   Sectio   |           | 98.08.03             | 1400             | 98-06812  | 94-98-00319                              | 26.4    | 7     | 2   | 0   | 7  | 0     |     | 6.0   |         | 0    | 0.3            | _ | 0     | _     | 0     |
| 11   12   12   12   12   12   12   12  |           | 96.06.03             | 1409             | 98-06814  | 94-98-00321                              | 30.4    | 7     | 7 ( | 0   |    | 9.0   | 7   | 0     | _       | 0    | 0.4            |   | 0.015 | 7     | 0     |
| 98.06.26 1135 99-08383 94-99-00369 215 L 0 L 0 L 0 10 0 0 0 0 0 0 0 0 0 0 0 0  |           | 36.06.03             | 1415             | 38-06815  | 94-98-00322                              | 37.1    | 7     | 2   | 0   |    | 1.0   | -   | 0     | 0       | 990  | 0.4            |   | 0.007 | 7     | 0     |
| Section   1155   Section   |           | OR OR 26             | 1132             | 98-08382  | 94-98-00366                              | 20.0    | 7     | 7   | 0   |    | 1.0   |     | 0.8   | _       | 0    | 0.5            |   | 0.012 | 4     | 0     |
| Second Street  |           | 98.08.26             | 1135             | 98-08383  | 94-98-00367                              | 21.5    | 7     | 2 ( | 0   |    | 6.0   | ٦   | 0     | _       | 0    | 0.4            |   | 0.012 | _     | 0     |
| 89.07.08 1156 98-05431 94-96-00369 237 L 0 L 0 L 0 L 0 0 12 0.025 L 0 0 L 0 L 0 L 0 L 0 0.025 L 0 L 0 L 0 L 0 L 0 L 0 0.025 L 0 L 0 L 0 L 0 L 0 L 0 L 0 0.025 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 0.025 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L  |           | 98.08.26             | 1136             | 98-08384  | 94-98-00368                              |         |       |     |     |    |       |     |       |         | ,    |                |   | -     |       | (     |
| 98.07.08 1156 99-05432 94-98-00307 90.3 L 0 L 0 L 0 L 0 L 0 0 112 0.3 0.025 L 0 98.07.08 1720 96-05432 94-98-00309 91.4 L 0 L 0 L 0 L 0 L 0 D 0 0.122 0.4 0.025 L 0 98.07.08 1720 96-05432 94-98-00309 91.4 L 0 L 0 L 0 L 0 D 0 0.152 0.4 0.025 L 0 0. |           | 98.08.26             | 1140             | 98-08385  | 94-98-00369                              | 23.7    | 7     | 0   | 0   |    | 1.0   |     | 1.1   | _       | 0    | 0.5            |   | 0.026 | _     | 0     |
| 98.07.08 1206 96-05432 94-96-00000 91-4  | WALLE 1   | QR 07 08             | 1158             | 98-05431  | 94-98-00306                              | 7 88    | 7     | 2   | 0   |    | 0     | ٦   | 0     |         | 112  | 0.3            |   | 0.025 | _     | 0     |
| 98.077.08 1129 99-05434 94-99-03329 911 L 0 L 0 L 0 L 0 D 0 0163 0.4 0.151 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |           | 98.07.08             | 1206             | 98-05432  | 94-98-00307                              | 90.3    | 7     | ) L | 0   | 7  | 0     | _   | 0     | 0       | 122  | 0.4            |   | 0.025 | _     | 0     |
| 98.07.08 1125 99-05428 94-99-00309 914 L 0 L 0 L 0 L 0 L 0 D 0 0163 0.4 0.039 L 0 0286 0.4 0.151 L 0 L 0 L 0 L 0 L 0 D 0 0163 0.4 0.039 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |           | 98.07.08             | 1210             | 98-05433  | 94-98-00308                              |         |       |     |     |    |       |     |       |         |      |                |   | -     | ,     | -     |
| 98.07.08 1225 98-05425 94-98-00310 108.0 L 0 L 0 L 0 D 0.9 0.286 0.4 0.151 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |           | 98.07.08             | 1158             | 98-05434  | 94-98-00309                              | 91.4    | 7     | 0   | 0   | -1 | 0     | _   | 0     | 0       | 3    | 0.4            |   | 0.036 | ٠ د   | 0 (   |
| 98.08.04 1139 99-0800 94-96-00329 59.8 L 0 L 0 L 0 0.7 1 0.142 0.4 0.015 L 0.015 L 99.08.04 1146 99-0800 94-96-00330 50.1 L 0 L 0 0.6 2.4 0.135 0.4 0.135 0.4 0.015 L 99.08.04 1146 99-08003 94-96-00332 50.1 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L  |           | 98.07.08             | 1225             | 98-05435  | 94-98-00310                              | 108.0   | 7     | 0   | 0   | _  | 0     |     | 6.0   | 0       | 286  | 0.4            |   | 0.151 | -1    | 0     |
| 98.08.04 1145 98-08901 94-98-00331 60.1 L 0 L 0 0 06 2.4 0.135 0.4 0.0015 L 99.08.04 1145 98-08902 94-98-00331 60.1 L 0 L 0 L 0 0 0.7 1 0.167 0.4 0.0032 L 99.08.05.13 1402 98-08257 94-98-00325 60.7 L 0 L 0 L 0 L 0 0.7 0.207 0.4 0.0054 L 99.09.13 1432 98-08259 94-98-00302 84.9 L 0 L 0 L 0 L 0 L 0 0.7 0.207 0.4 0.0056 L 99.09.13 1432 98-08259 94-98-00302 84.9 L 0 L 0 L 0 L 0 0 0.07 0.207 0.4 0.0057 L 99.07.08 1135 98-08259 94-98-00302 84.9 L 0 L 0 L 0 L 0 0 0.097 0.3 0.0056 L 99.07.08 1135 98-08259 94-98-00305 85.9 L 0 L 0 L 0 L 0 0 0.097 0.3 0.0057 L 99.08.04 1125 98-0899 94-98-00325 55.9 L 0 L 0 L 0 L 0 L 0 0 0.005 0.4 0.0014 L 99.08.04 1225 98-0899 94-98-00325 57.3 L 0 L 0 L 0 L 0 L 0 0 0.005 0.4 0.005 0.4 0.0014 L 0 0.0050 1432 98-0899 94-98-00325 57.3 L 0 L 0 L 0 L 0 L 0 0.005 0.4 0.005 0.4 0.0016 1225 98-0899 94-98-00325 57.3 L 0 L 0 L 0 L 0 L 0 0.005 0.4 0.00 |           | 20 80 80             | 1138             | 00690-96  | 94-98-00329                              | 59.8    | 7     | 7   | 0   |    | 0.7   |     | 90    | 0       | .142 | 0.4            |   | 0.015 | _     | 0     |
| 96.09.04 1146 98-06902 94-98-00331 60.1 L 0 L 0 0 0 0 0 0 135 0.4 0.015 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |           | 98.08.04             | 1145             | 10690-96  | 94-98-00330                              |         |       |     |     |    |       |     |       |         |      |                |   |       | ,     |       |
| 98.09.13 1403 99-0925 94-98-00302 50.7 L 0 0.2 0.7 1 0.167 0.4 0.023 L 98.09.13 1405 99-0925 94-98-00302 50.7 L 0 L 0 L 0 D T 0.167 0.4 0.024 L 98.09.13 1405 99-0925 94-98-00307 49.0 L 0 L 0 L 0 D T 0.216 0.5 0.056 L 98.09.13 1405 99-0525 94-98-00302 84.0 L 0 L 0 L 0 L 0 D D D D D D D D D D D  |           | 98 08 04             | 1148             | 98-06902  | 94-98-00331                              | 1.09    | 7     | 0   | 0   |    | 9.0   |     | 2.4   | 0       | 135  | 0.4            |   | 0.015 | -     | 0     |
| 96.09.13 1400 99-09257 94-96-00406 46.1 L 0 L 0 L 0 L 0 0.7 0.207 0.4 0.054 L 96.09.13 1400 99-09259 94-96-00407 49.0 L 0 L 0 L 0 L 0 1.6 0.216 0.5 0.056 L 0 0.057 1 1410 99-09259 94-96-00409 49.0 L 0 L 0 L 0 L 0 L 0 0.7 0.214 0.5 0.056 L 0 0.057 1 1410 99-09259 94-96-00409 49.0 L 0 L 0 L 0 L 0 L 0 0.07 0.214 0.5 0.057 L 0 0.057 1 125 99-05428 94-96-00303 84.9 L 0 L 0 L 0 L 0 L 0 0.097 0.3 0.028 L 0 0.057 0.1125 99-05429 94-96-00304 89.9 L 0 L 0 L 0 L 0 L 0 0.097 0.3 0.0097 L 0 0.097 0.3 0.0097 0.3 0.0097 0.3 0.0098 0.4 0.0090 0.4 0.0098 0.4 0.0098 0.4 0.0098 0.4 0.0199 0.4 0.0199 0.4 0.0199 0.4 0.0199 0.4 0.0199 0.4 0.0199 0.4 0.0199 0.4 0.0199 0.4 0.0199 0.4 0.0199 0.4 0.0199 0.4 0.0199 0.4 0.0099 0.4 0.0099 0.4 0.0199 0.4 0. |           | 98.08.04             | 135              | 50690-96  | 94-96-00332                              | 200     | 7     | 0   | 0.2 |    | 0.7   |     | -     | 0       | 167  | 0.4            |   | 0.023 | _     | 0     |
| 96.09.13 14.06 99-09238 94-98-00407 49.0 L 0 L 0 L 0 1.6 0.216 0.5 0.006 L 0 96.09.13 14.10 99-09239 94-98-00408 49.0 L 0 L 0 L 0 L 0 L 0 0.7 0.214 0.5 0.007 L 0 0.00 |           | 98.09.13             | 1403             | 98-09257  | 94-98-00406                              | 48.1    | -3    | 0   | 0   | ٠  | 0     |     | 0.7   | 0       | 207  | 0.4            |   | 0.054 |       | 0     |
| 96.09.13 1410 98-09259 94-98-00000 490 L 0 L 0 L 0 16 0.216 0.5 0.000 L 0 0 L 0 L 0 0 16 0.216 0.5 0.000 L 0 L 0 L 0 L 0 L 0 0.00 0.7 0.216 0.5 0.000 L 0 L 0 L 0 L 0 L 0 0.00 0.7 0.216 0.5 0.000 L 0 L 0 L 0 L 0 L 0 L 0 0.000 L |           | 98.09.13             | 1406             | 96-09258  | 94-98-00407                              |         |       |     |     |    |       |     |       |         |      |                |   | -     |       | 4     |
| 98.07.08 1118 98-05270 94-98-00002 84.0 L 0 L 0 L 0 L 0 L 0 0.086 0.3 0.007 L 99.07.08 1118 98-05428 94-98-00302 84.0 L 0 L 0 L 0 L 0 D D D D D D D D D D D  |           | 96.09.13             | 1410             | 98-09259  | 94-98-00408                              | 49.0    | 7     | 0   | 0   | 7  | 0     |     | 1.6   | 0       | 216  | 0.5            |   | 0.056 |       | 0 8   |
| 96.07.08 1118 99-05427 94-98-00302 84.0 L 0 L 0 L 0 L 0 0.086 0.3 0.026 L 99.07.08 1125 99-05428 94-98-00303 84.9 L 0 L 0 L 0 L 0 0.097 0.3 0.026 L 98.07.08 1125 99-05429 94-98-00303 84.9 L 0 L 0 L 0 L 0 0.097 0.3 0.034 L 98.08.04 1225 99-05899 94-98-00325 55.9 L 0 L 0 L 0 L 0 L 0 0.107 0.5 0.014 L 99.08.04 1228 99-05899 94-98-00325 57.3 L 0 L 0 L 0 L 0 L 0 0.106 0.4 0.016 L 0 0.006 0.4 0.016 L 0 L 0 L 0 L 0 L 0 L 0 0.006 0.4 0.016 L 0 L 0 L 0 L 0 L 0 L 0 D L 0 D L 0 D L 0 D L D D D D  |           | 98.09.13             | 1432             | 98-09260  | 94-98-00409                              | 49.0    | ٥     | 0   | 0   |    | 1.0   |     | 0.7   | 0       | 214  | 0.0            |   | 0.007 | -0    | 3     |
| 98.07.08 1125 98-05428 94-98-00303 84.9 L 0 L 0 L 0 L 0 D 0.097 0.3 0.028 L 98.07.08 1125 98-05428 94-98-00305 85.9 L 0 L 0 L 0 L 0 D 0.0 D 0.017 0.3 0.034 L 0 D 0.00 D 0 | C 31 14.3 | 90 00 90             | œ                | QB_05427  | 200000-00-00-00-00-00-00-00-00-00-00-00- | 84.0    | 1     | 0   | 0   | -  | 0     | _   | 0     | 0       | 990  | 0.3            |   | 0.026 | _     | 0     |
| 1131 99-05439 94-98-00304 10   | T COURT   | 20.07.00             | 9644             | BC 200 BO | 04.00 A0307                              | 849     | 1     | 0   | 0   | 1  | 0     | 7   | 0     | 0       | 760  | 0.3            |   | 0.028 | _     | 0     |
| 1222 99-08996 94-98-00325 56.9 L 0 L 0 L 0 L 0 L 0 0.117 0.5 0.014 L 1.225 99-08996 94-98-00326 57.3 L 0 L 0 L 0 L 0 L 0 0.106 0.4 0.014 L 1.236 99-08999 94-98-00326 60.1 L 0 L 0 L 0 L 0 D D D D D D D D D D D D   |           | 96.07.06<br>96.07.06 | 1131             | 96-05429  | 94-98-00304                              | 80.8    | -     | 0   | 0   | _  | 0     |     | 0.8   | 0       | 101  | 0.3            |   | 0.034 | -     | 0     |
| 1225 99-06899 94-98-00326 57.3 L 0 L 0 L 0 L 0 L 0 0.006 0.4 0.014 L 1225 99-06899 94-98-00326 57.3 L 0 L 0 L 0 L 0 L 0 L 0 0.006 0.4 0.016 L 1432 99-09253 94-98-00402 61.4 L 0 L 0 L 0 L 0 L 0 0.0 0.14 0.4 0.250 L 1435 98-09255 94-98-00403 56.8 L 0 L 0 L 0 L 0 0.6 0.139 0.4 0.230 L 1439 98-09255 94-98-00403   |           |                      | -                | 000000    | 30000 00 00                              | 0 93    | -     | -   | C   | -  | C     | -   | 0     | 0       | 7117 | 0.5            |   | 0.014 | 1     | 0     |
| 1230 99-06899 94-96-00327 60.1 L 0 L 0 L 0 0.6 0.096 0.4 0.016 L 1432 99-09253 94-96-00402 61.4 L 0 L 0 L 0 L 0 0.6 0.14 0.4 0.250 L 1435 99-09255 94-96-00403 56.8 L 0 L 0 L 0 L 0 0.6 0.139 0.4 0.230 L 1439 99-09255 94-96-00403  |           | 98.08.04             | 777              | 36-00036  | 94-96-00323                              | 57.3    |       |     | 0   |    | 0     | ب ، | 0     |         | 106  | 4.0            |   | 0.014 | _     | Q     |
| 1238 96-06899 94-96-00328 60.1 L 0 L 0 L 0 0.6 0.096 0.4 0.016 L 1432 96-08254 94-96-00402 61.4 L 0 L 0 L 0 L 0 0.6 0.139 0.4 0.250 L 1435 98-08254 94-96-00403 56.8 L 0 L 0 L 0 0.6 0.139 0.4 0.230 L 1439 98-09255 94-96-00404   |           | 90.00.00             | 022              | OR Cheaga | 94-98-00377                              | 2       |       |     |     |    |       | ĸ   |       |         |      |                |   |       |       |       |
| 1432 99-09253 94-98-00402 61.4 L 0 L 0 L 0 L 0 L 0 0.14 0.4 0.250 L 1435 99-09254 94-98-00403 56.8 L 0 L 0 L 0 0.6 0.139 0.4 0.230 L 1439 99-09255 94-98-00404   |           | 38.08.04             | 1238             | 96-06899  | 94-96-00328                              | 1.09    | 7     | 0   | 0   | 7  | 0     |     | 9.0   | 0       | 900  | 0.4            |   | 0.016 | _     | 0     |
| 1435 98-09255 94-98-00404 56.8 L 0 L 0 L 0 0.6 0.139 0.4 0.230 L   |           | 24 00 00             | 5571             | SACOO. NO | 04.08.0040D                              | 61.4    | 7     | 1 0 | 0   | 7  | 0     | _   | 0     |         | 3.14 | 0.4            |   | 0.250 | 7     | 0     |
| 1439 98-09255 94-96-00404  |           | 2 6 6 6              | 1435             | 98-08254  | 94-98-00403                              | 8.98    | -     | 0   | 0   | -  | 0     |     | 9.0   | 0       | 139  | 0.4            |   | 0.230 | _     | 0     |
|  |           | 98.09.13             | 1439             | 98-09255  | 94-96-00404                              |         |       |     |     |    |       |     | ,     |         |      |                |   |       |       |       |

| Station #  | Date                             | from ADT             | * 45                             | Field #                                   | 3     | PB ug/las | SE PER SE | - 8 - | Bu .  | NS MS |
|------------|----------------------------------|----------------------|----------------------------------|---|-------|-----------|-----------|-------|-------|-------|
| SCR CNOS 1 | 98 07 08<br>98 07 08<br>98 07 08 | 0909<br>0916<br>0920 | 98-05424<br>98-05425<br>98-05426 | 94-96-00299<br>94-98-00300<br>94-98-00301 | _     | 2.0       |           | 00    |       | 00    |
|            | 96.08.04                         | 0925                 | 98-06894                         | 94-98-00323                               | -1 -1 | 00        |           | 00    |       | 00    |
|            | 96 09 13                         | 1120                 | 98-09251                         | 94-98-00401                               |       | 00        | الد الد   | 00    |       | 00    |
| SCR EGR 1  | 98.07.06                         | 0940                 | 98-05172                         | 94-98-00260                               | _     | 0         | ۰         | 0     | -ul   | 0     |
|            | 98.07.08<br>98.07.08             | 0952<br>1010<br>1020 | 98-05173<br>98-05174<br>98-05175 | 94-98-00262<br>94-98-00262<br>94-98-00263 |       | 00        |           | 00    | ك ف   | 00    |
|            | 96.06.05                         | 0848                 | 98-07051                         | 94-96-00345                               | -4    | 0         | -         | 0     |       | 0     |
|            | 8 8 8<br>8 8 8<br>8 8 8<br>8 8 8 | 1001                 | 98-07052<br>98-07053<br>98-07054 | 94-98-00346<br>94-98-00348                | _     | 1.7       | -1 -1     | 00    |       | 00    |
|            | 98.08.30                         | 1203                 | 98-08574                         | 94-98-00374                               | ed.   | 0         |           | 0     | -     | 0     |
|            | 96 96 96<br>96 96 96<br>96 96 96 | 1211                 | 98-08576<br>98-08576             | 94-98-00376<br>94-98-00376<br>94-98-00377 |       | 1.2       |           | 00    | _     | 0.017 |
| SCR EGR 4  | 96.07.06                         | 1122                 | 98-05176                         | 94-98-00264                               |       | 0         | -1        | 0     | ٠     | 0     |
|            | 98 07 06<br>98 07 06<br>98 07 06 | 1139                 | 98-05178<br>98-05178             | 94-96-00265<br>94-96-00266<br>94-96-00267 | ., -i | 00        |           | 00    | -     | 0.028 |
|            | 98.08.05                         | 1100                 | 98-07055                         | 94-98-00350                               | -1 -1 | 00        |           | 00    | -1 -1 | 00    |
|            | 98.08.05                         | 1114                 | 98-07058                         | 94-98-00352                               | _     | 0         | al        | 0     | ف     | 0     |
|            | 96.08.30                         | 1318                 | 98-08578                         | 94-98-00378                               |       | 00        | -0 -0     | 00    |       | 00    |
|            | 96 06 30<br>96 08 30             | 1324<br>1326         | 98-08580                         | 94-98-00380                               | ث     | 0         | -4        | 0     | _     | 0     |
| SCR EGR 6  | 96 07 06                         | 1655                 | 98-05184                         | 94-38-00272                               | _     | 0         | ad .      | 0     | - de  | 0     |
|            | 96 07 06<br>96 07 06             | 1706                 | 98-05186<br>98-05187             | 94-96-00274                               | ك ك   | 00        | ed ed     | 00    | د د   | 00    |
|            | 88<br>80<br>80<br>80<br>80<br>80 | 1447                 | 98-06904                         | 94-98-00333                               | -1 -1 | 00        | -1 -1     | 00    | ت د   | 00    |
|            | 98 06 04                         | 1456                 | 38-06906                         | 94-98-00335                               | -     | C         | -         | 0     | -     | 63    |

NZ Ngm 000 0 00 0 000 00 6 00 0 00 0 600 00 00 0 600 Appendix 5te (cont.), 1996 St. Croix Lakes Study Fleid and Laboratory Data. Values shown as zero (0) reflect no detactible value at the limit of quantification (see test methods at end of table) -4 -4 -4 ف ف 00 000 0 00 0 00 0 0 SB light 000 0 00 00 0 000 000 00 0 SB ---444 8 Pg 8 21.1 0 000 0 00 00 0 000 000 00 0 00 0 00 0 000 0 444 -1 -4 94-98-00337 94-98-00338 94-98-00339 94-96-00386 94-96-00388 94-96-00388 94-96-00388 94-96-00390 94-96-00391 94-96-00393 94-96-00393 94-98-00279 94-96-00280 94-96-00281 94-96-00282 94-98-00341 94-98-00343 94-98-00396 94-98-00399 94-98-00400 94-98-00276 94-98-00277 94-98-00278 94-98-00396 94-98-00297 94-96-00357 94-96-00356 94-96-00359 94-96-00350 94-98-00340 94-98-00395 94-98-00295 94-98-00296 94-98-00394 34-96-0036 Field 8 98-08912 98-08913 98-08914 98-08915 98-08916 98-08918 98-08918 98-05191 98-05192 98-05193 98-05194 98-05188 98-05189 98-05190 98-05328 98-05329 98-05330 98-05331 98-08924 98-08925 98-08926 98-08921 98-08922 98-08923 98-06912 98-06910 38-06913 38-06915 38-08920 38-07063 38-07065 38-07066 98-06914 80690-86 98-06909 38-06911 38-07064 8-07067 # qe from ADT 0912 0920 0926 1136 730 1214 450 450 450 450 502 1510 1515 1515 812 612 232 544 98.09.03 98.09.03 98.09.03 98.07.06 98.07.06 98.07.06 98.09.03 98.09.03 98.09.03 96.07.07 96.07.07 96.07.07 98.08.05 98.08.05 98.08.05 98.08.05 98 09 03 98 09 03 98 09 03 98 09 03 98.07.06 98.07.06 98.07.06 98.09.03 98.09.03 98.09.03 88.08.08 88.08.08 88.08.04 89.08.04 Date SCR NTH 2 SCR NTH 1 SCR SKIF Station #

|            |               |          |                      |                            | a.    | 60    | SB .  | _ : | -    | 2     |
|------------|---------------|----------|----------------------|----------------------------|-------|-------|-------|-----|------|-------|
| Station #  | Date<br>y/m/d | from ADT | 13b #                | a Diei.                    | 3     | P. 20 | Sp    |     |      | Z     |
| SCR SPED 1 | 98.07.06      | 1320     | 98-05180             | 94-98-00268                | ب     | 0     | -     | 0   | _    | 0     |
|            | 96.07.06      | 1325     | 98-05181             | 94-98-00269                | -     | c     | -     | c   | -    | C     |
|            | 98.07.08      | 1335     | 98-05183             | 94-98-00271                |       | 0 0   |       | 0   | _    | 0     |
|            |               |          | AN ATAGO             | 04 00 00363                |       | 6     | •     | 6   | -    | 6     |
|            | 888           | 1252     | 98-07039<br>08-07060 | 94-98-00354                | s     | •     |       | ,   |      |       |
|            | 88.00         | 0021     | 98-07061             | 94-96-00355                | _     | 0     | 1     | 0   | _    | 0     |
|            | 38.08.05      | 1356     | 96-07062             | 94-98-00354                | -     | 0     | -4    | 0   | _    | 0     |
|            | QR 08 30      | 1446     | 98-08582             | 94-98-00382                | -1    | 0     | فد    | 0   | ف    | 0     |
|            | 98 08 30      | 1455     | 98-08583             | 94-98-00383                |       |       |       |     |      |       |
|            | 96 06 30      | 1458     | 98-08584             | 94-98-00384                | _     | 0     | _     | 0   | _    | 0     |
|            | 96.06.30      | 1503     | 38-08585             | 94-98-00385                | _     | 0     | _     | 0   | _    | 0     |
| A 0200 000 | 70 70 80      | 1200     | 98-05324             | 94-96-00291                | ال    | 0     |       | 0   | ف    | 0     |
| CH SPED S  | 20.00         | 1205     | 98-05325             | 94-96-00292                |       |       |       |     |      |       |
|            | 00.07.07      | 1211     | 98-05326             | 94-98-00293                | _     | 0     | 7     | 0   |      | 0     |
|            | 98.07.07      | 1220     | 98-05327             | 94-98-00294                | _     | 0     | -1    | 0   | 7    | 0     |
|            | 20 00 00      | 4267     | GR.OGROB.            | 94.98-00315                | -4    | 1.0   | ئے۔   | 0   |      | 0.055 |
|            | 20.00.03      | 1211     | 98-06809             | 94-98-00316                |       |       |       |     |      |       |
|            | 20.00         | 1217     | 98-06810             | 94-98-00317                | _     | 0     | ك     | 0   | -4   | 0     |
|            | 50.80.85      | 1223     | 98-06811             | 94-98-00318                | ۵     | 0     | ف     | 0   |      | 0.019 |
|            | 20 20 20      | 3163     | GREGATAR             | 04-98-00370                | -4    | 0     | ا     | 0   | _0   | 0     |
|            | 2000          | 1247     | GR-DR387             | 94-96-00371                |       |       |       |     |      |       |
|            | 100 M         | 1251     | 98-08366             | 94-98-00372                |       | 0     | ۵     | 0   | ف    | 0     |
|            | 96 06 26      | 1259     | 98-06389             | 94-98-00373                | nd.   | 0     | ات    | 0   | ad . | 0     |
| SCR SPED 6 | 56.07.07      | 7987     | 98-05316             | 94-98-00283                | ف     | 0     | _     | 0   | ے    | 0     |
|            | 98.07.07      | 1960     | 98-05317             | 94-98-00284                |       |       | -     | •   |      | 0000  |
|            | 70 70 49      | 1003     | 98-05318             | 94-96-00286                | ات ال | 90    | ف د   | 0 0 | -    | 0     |
|            |               |          |                      |                            |       | •     | -     | C   | 4    | C     |
|            | 98.08.03      | 1057     | 98-06804             | 94-98-00311                | ٥     | 5 4   | ۵ -   | 9 0 | 0    | 0.011 |
|            | 98.08.03      | 1104     | 00900-95             | 54-50-00312<br>04-00-00313 |       |       | )     | )   |      |       |
|            | 98.08.03      | 1114     | 38-06807             | 54-98-00314                | _     | 0     | -     | 0   |      | 0.019 |
|            | 26 80 80      | 1004     | 98-08378             | 34-98-00362                | ف     | 0     | ك     | 0   | _    | 0     |
|            | 98 08 26      | 1006     | 96-08379             | 94-98-00363                |       |       |       | 4   |      | (     |
|            | 98 08 26      | 1010     | 98-08380             | 94-98-00364                | ١     | 0     | ٠ د   | 0   | -    | 0     |
|            | Se 08.26      | 1013     | 98-08381             | 94-98-00365                | ١     | 0     | esil. | 0   |      | 0.0   |
| 7 0300 000 | OR 07 07      | 1107     | 98-05320             | \$4-98-00287               | dia.  | 0     | _0    | 0   | ف    | 0     |
| מרא מובה   | 94 07 07      |          | 98-05321             | 94-98-00288                |       |       |       |     |      | (     |
|            | 96 07 07      |          | 98-05322             | 94-96-00289                | ٠ ا   | 00    | به لب | 00  | i    | 00    |
|            | 70 70 96      |          | 98-05323             | 34-98-00/20                | ۵     | 5     | ā     |     | 3    | 9     |

Appendix 5b (cont.), 1998 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table)

|            | Date     | from ADT | lab #    | Field #     | 3   | P as | SE ASS | SP 45 | E  | mg/i as |
|------------|----------|----------|----------|-------------|-----|------|--------|-------|----|---------|
|            | 96 06.03 | 1400     | 98-06812 | 94-96-00319 | _1  | 0    | ٦      | 0     | _  | 0       |
|            | 50 BO 96 | 1403     | 98-06813 | 94-98-00320 |     | 4    |        | -     |    | •       |
|            | 50 B     | 1409     | 98-06814 | 94-96-00321 | ٠   | 0    | ٥      | 0     |    | 0       |
|            | SB OB 03 | 1415     | 58-06815 | 94-98-00322 | _   | 0    | _      | 0     | ٥  | D       |
|            | 98 08 26 | 1132     | 98-08382 | 94-98-00366 | -4  | 0    | -4     | 0     | -4 | 0       |
|            | 98.08.26 | 1135     | 98-08383 | 94-98-00367 | -   | 0    | -      | 0     |    | 0.012   |
|            | 96.06.26 | 1138     | 98-08364 | 94-98-00368 |     |      |        |       |    |         |
|            | 96.06.26 | 1140     | 38-08385 | 94-98-00368 | -1  | 0    | _      | 0     | _  | 0       |
| SCR WAUK 1 | 98.07.08 | 1158     | 98-05431 | 94-98-00306 | -   | 0    |        | 0     |    | ø       |
|            | 98.07.08 | 1205     | 98-05432 | 94-96-00307 | 1   | 0    | -      | 0     | -  | 0       |
|            | 96.07.08 | 1210     | 98-05433 | 94-96-00306 | 1   | ,    |        | )     |    |         |
|            | 96 07.08 | 1158     | 98-05434 | 94-96-00309 | _1  | 0    | _      | 0     | -1 | 0       |
|            | 98.07.08 | 1225     | 96-05435 | 94-96-00310 |     | 1.0  | _      | 0     |    | 0.027   |
|            | 98.08.04 | 1139     | 00690-90 | 94-98-00329 | -4  | 0    | ٠      | 0     | ف  | 0       |
|            | 96.06.04 | 1145     | 10690-96 | 94-98-00330 |     |      |        |       |    |         |
|            | 96.08.04 | 1148     | 98-06902 | 94-98-00331 |     | 1.1  | -      | 0     | -  | 0       |
|            | 96.08.04 | 1154     | 98-06903 | 94-98-00332 | ad  | 0    | ف      | 0     | _  | 0       |
|            | 98.09.13 | 1403     | 98-09257 | 94-98-00406 | -4  | 0    | ف      | 0     | -6 | 0       |
|            | 96.09.13 | 1406     | 96-09258 | 94-98-00407 |     |      |        |       |    |         |
|            | 98.09.13 | 1410     | 98-09259 | 94-98-00408 | -4  | 0    |        | 0     | فد | 0       |
|            | 98.09.13 | 1432     | 98-09260 | 94-98-00409 | ul. | 0    | -      | 0     | ف  | 0       |
| SCR WAUK 2 | 98 07.08 | 1118     | 96-05427 | 94-98-00302 | 7   | 0    | _      | 0     | _  | 0       |
|            | 98.07.08 | 1125     | 98-05428 | 94-98-00303 |     | 1.0  | ف      | 0     | ۇ  | 0       |
|            | 96.07.08 | 1131     | 98-05429 | 94-98-00304 | -48 | 0    | ٦      | 0     | _3 | 0       |
|            | 90.70.08 | 1125     | 98-05430 | 94-96-00305 |     |      |        |       |    |         |
|            | 98.08.04 | 1222     | 96990-96 | 94-96-00325 | -4  | 0    | -4     | 0     | 6  | 0       |
|            | 98.08.04 | 1225     | 98-06897 | 94-98-00326 |     | 10   | ف      | 0     | ف  | 0       |
|            | 96.08.04 | 1230     | 98-06896 | 94-98-00327 |     |      |        |       |    |         |
|            | 96.08.04 | 1238     | 66890-86 | 94-98-00328 | må. | 0    | _      | 0     |    | 0.14    |
|            | 98.09.13 | 1432     | 98-09253 | 94-98-00402 | -1  | 0    | -      | 0     |    | 0.39    |
|            | 96.09.13 | 1435     | 98-09254 | 94-98-00403 | _1  | 0    | -1     | 0     | _  | 0       |
|            | 98.09.13 | 1439     | 98-09255 | 94-98-00404 |     |      |        |       |    |         |
|            | 96.09.13 | 1441     | 98-09256 | 94-98-00405 | -4  | 0    | d      | 0     | -d | 0       |

Appendix 5b (cont.), 1999 St. Croix Lakes Study Field and Laboratory Data.
Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| SC-GFT14         Fifth Lake - Station II still         1880  | Station # | Location                          | Date<br>y/m/d | Time<br>from ADT | Lab       | Field *  | depth as | Water<br>Temp as | mg/l as<br>CaCO3 | 2 5 2 | CMA | 3 50  | Color units |
|--|-----------|-----------------------------------|---------------|------------------|-----------|----------|----------|------------------|------------------|-------|-----|-------|-------------|
| 9900028 (187   198006817) 9 100068 (187   198006817) 9 100068 (187   187 | SC-FIFTH1 | Fifth Lake - Station #1           | 99/06/28      | 1810             | 199905177 | 94/00489 | 20       | 24.5             | 3.72             | 1.79  |     |       | 25          |
| ### Secretary 1930   19 |           |                                   | 99/06/28      | 1815             | 199905179 | 94/00491 | 0.4      | 225              | 3.66             | 1.74  |     |       | 0.5         |
| 990/7719 1226 199909686 9400059 53 224 454 236 0786 990/7719 1225 199909687 9400059 53 214 334 216 0 2 1 0 085 990/7719 1225 199909687 9400059 53 214 334 216 0 172 990/7719 1225 199909687 9400059 62 218 314 201 0 172 990/8729 1200 199909697 9400069 62 218 344 201 0 172 990/8729 1200 199909697 9400069 62 218 344 201 0 172 990/8729 1200 199909990 9400069 120 120 245 244 201 0 166 1 17 0 172 990/8729 1200 199909990 9400069 120 245 248 201 0 166 1 17 0 172 990/8729 1200 199909990 9400069 120 245 248 201 0 166 1 17 0 172 990/8729 1200 199909990 9400069 120 245 248 201 0 166 1 17 0 172 990/8729 1200 199909990 9400069 120 245 248 201 0 166 1 17 0 172 990/8729 1200 199909990 9400069 120 249 631 25 1 17 0 172 990/8729 1300 19990999 9400069 120 249 631 25 1 17 0 172 990/8729 1300 19990999 9400069 120 249 631 25 1 17 0 175 990/8729 1300 19990999 9400069 120 242 65 244 1 17 1 120 990/8729 1200 19990749 19000069 120 242 65 244 1 17 1 120 990/8729 1200 19990749 19000069 120 242 65 244 1 120 990/8729 1200 19990749 19000069 120 242 65 244 1 120 990/8729 1200 19990749 19000069 120 242 65 244 1 120 990/8729 1200 19990749 19000069 120 242 65 244 1 120 990/8729 1200 19990749 19000069 120 242 65 244 1 120 990/8729 1200 19990749 19000069 120 242 65 244 1 120 990/8729 1200 19990749 19000069 120 242 65 244 1 120 990/8729 1200 19990749 19000069 120 242 65 244 1 120 990/8729 1200 19990749 19000069 120 242 65 244 1 120 990/8729 1200 19990749 19000069 120 242 65 244 1 120 990/8729 140 19990749 19000069 120 242 120 120 120 120 120 120 120 120 120 12   |           |                                   | 87/90/85      | 1830             | 198905180 | 9400492  | 0        | 8                | 9 9              | 1.72  |     | 0.874 | ņ           |
| 99(07)19 1720 199909009 94(00052) 10.8 20.7 4.54 2.06 0.754 99(07)19 1720 199909009 10.8 20.7 4.54 2.06 0.754 99(07)19 1720 199909009 10.8 20.7 4.54 2.06 0.754 99(07)19 1720 199909000 194000000 0.2 22.3 3.7 2.0 0.7 |           |                                   | 98/07/19      | 1218             | 199906665 | 94/00535 | 0.2      | 24.4             | 2                | 2.36  |     | 0.786 | W)          |
| Septiminary   1200   199900000   120   120   199900000   120   120   199900000   120   120   199900000   120   120   199900000   120   120   199900000   120   120   199900000   120   120   120   199900000   120   1   |           |                                   | 99/07/19      | 1220             | 199909666 | 94/00536 | (F)      | 2                |                  |       |     |       | 4           |
| Grand Falls Flowage - Station #7         990/12/29         1720         1990/2014         9400/2014         9400/2014         9400/2014         9400/2014         9400/2014         9400/2014         9400/2014         9400/2014         9400/2014         9500/2014         9400/20  |           |                                   | 98/07/19      | 1230             | 199906668 | 94/00538 | 10.8     | 20.7             | 3.7              | 2.06  |     | 0.784 | n 9         |
| Grand Filis Flowage - Sulton #7         99/06/20         1206         1400/650         4400/65         218         344         201         0         32         0.904           Grand Filis Flowage - Sulton #7         1206         1206         4400666         120         12         448         201         0         32         0         940           Grand Filis Flowage - Sulton #7         1206         1990/0450         9400475         30         245         51         266         17         165         0         30         165         17         165         0         30         166         17         165         0         30         166         17         165         0         30         166         17         165         0         30         166         17         165         0         30         166         17         166         17         166         17         166         17         166         17         166         17         166         17         166         17         166         17         166         17         166         166         17         166         17         166         17         166         17         166         17         166 <td></td> <td></td> <td>99/08/29</td> <td>1200</td> <td>199909301</td> <td>94/00/82</td> <td>02</td> <td>528</td> <td>3.79</td> <td>2 02</td> <td></td> <td>0.772</td> <td>0</td>  |           |                                   | 99/08/29      | 1200             | 199909301 | 94/00/82 | 02       | 528              | 3.79             | 2 02  |     | 0.772 | 0           |
| Septidation      |           |                                   | 99/08/29      | 1208             | 198909302 | 94/00683 | 9        | 21.8             |                  |       |     |       |             |
| Grand Falls Flowage - Station #1 9806622 1230 199904935 94/00474 0.2 24.5 5.1 2.66 0.16 165 990622 1300 199904935 94/00475 3.0 21 22.8 5.1 2.64 0.16 1.7 990622 1300 199904939 94/00477 5.0 21 2.2 8 5.9 2.64 0.17 165 990622 1300 199904939 94/00565 0.2 22.8 5.9 2.8 5.9 2.63 0.4 4.8 1.59 0.4 1.59 990622 1300 199904939 94/00565 0.2 24.9 0.3 1.2 5.2 2.3 1.4 0.2 1.5 1.4 0.2 1.2 0.4 0.4 1.5 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4  |           |                                   | 99/08/29      | 1206             | 199909303 | 94/00684 | 6.2      | 21.8             | 3.44             | 2.01  |     | 0.794 | un ș        |
| Grand Falls Flowage - Station #1         990/67/22         1320         199904925         94/00474         0.2         245         5.1         266         0.166         175           990/67/22         1320         199904926         34/00477         3.0         21         4.9         274         1.6         1.7           990/67/22         1320         19990426         34/00476         3.0         21         4.8         274         1.5           990/67/26         1320         19990426         34/00466         5.0         21         5.2         2.3         2.64         1.5           990/67/26         1320         19990426         34/00666         5.0         21         5.2         2.1         5.2         1.5           990/77/26         1340         19990746         34/00666         5.0         21         5.2         2.1         1.5         1.5           990/77/26         1220         19990746         34/00666         5.0         21         5.2         3.4         1.5         1.5           990/77/26         1250         19990746         34/00669         4.5         2.7         5.7         1.4         1.5           990/72/2         150         1   |           |                                   | SAIOSIZA      | 1214             | 199908304 | 94/00665 | 120      | 12               | 16.0             | 539   |     | 0.80  | n           |
| 99006722 1330 199904939 9400477 5 10 21 497 2 64 17 16 17 19 19900476 13 10 21 4 48 274 1 15 16 19900472 1340 199904939 9400477 5 10 20 21 8 5 9 2 63 1 16 1 16 1 16 1 19 1 19 1 19 1 19 1   | SC-GFF1   | Grand Falls Flowage - Station #1  | 99/06/22      | 1320             | 199904935 | 94/00474 | 0.2      | 24.5             | 5.1              | 266   |     | 1.65  | 8           |
| 990/6/22 1340 1999/4/39 94/00476 10 21 492 264 117 116 117 119 119 119 119 119 119 119 119 119   |           |                                   | 39/06/22      | 1330             | 199904936 | 94/00475 | 3.0      | 21               |                  |       |     | 1     |             |
| 990/6/22 1300 1999/6/38 94/004/7 5 0 2 22 6 5 5 9 2 6 3 1 159 990/6/26 1305 1999/6/36 94/006/6 5 0 2 22 6 5 5 9 2 6 3 1 159 990/6/26 1305 1999/6/36 94/006/6 5 0 2 1 5 6 2 1 1 149 990/6/26 1305 1999/6/32 94/006/6 5 0 2 1 5 6 2 1 1 149 990/7/28 1205 1999/7/39 94/006/6 2 2 2 2 2 2 2 2 2 1 1 149 990/7/28 1205 1999/7/49 94/006/6 2 2 2 2 2 2 2 2 2 2 1 1 149 990/7/28 1205 1999/7/49 94/006/6 5 0 2 2 2 2 2 2 2 2 2 1 1 1 1 1 1 1 1 1 1   |           |                                   | 99/06/22      | 1340             | 199904937 | 94/00476 | 3.0      | 21               | 4.92             | 2.64  |     | 1.7   | 8           |
| Septical S   |           |                                   | 99/06/22      | 1350             | 199904938 | 94/00477 | 00       | 8                | 4.00             | 274   |     | 9     | R           |
| Selfolia   |           |                                   | 96/08/26      | 1320             | 199909259 | 94/00655 | 0.2      | 22.8             | 5.58             | 2.63  |     | 1.88  | in          |
| Selection   Sele   |           |                                   | 99/08/26      | 1330             | 199909260 | 94/00656 | 5.0      | 21               |                  |       |     |       |             |
| 99/07/28 1246 199907459 94/00669 5,0 21 562 231 1489 1489 1489 1489 1246 199907459 94/00669 0,0 22.8 6.5 244 0.2 8 156 199907459 94/00669 0,0 22.8 6.5 244 0.2 8 158 158 158 158 158 158 158 158 158 1   |           |                                   | 98/08/26      | 1335             | 199909281 | 94/00657 | 3.0      | 21.5             | 5.72             | 231   |     | 1.53  | in!         |
| 99/07/28 1245 199907459 94/00561 4,0 22.8 6.5 244 0.28 156 99/07/28 1250 199907459 94/00562 2.8 23 6.5 2.44 0.2 8 158 99/07/28 1250 199907451 94/00562 2.8 23 6.5 2.44 0.2 8 158 158 99/07/28 1250 199904919 94/00455 30 212 6.95 3.46 1.89 159 159 99/06/22 164/0 199904925 94/00455 30 212 6.95 3.46 1.89 149 148 99/06/22 164/0 199907454 94/00456 5.0 20 20 6.95 3.46 1.89 148 99/07/28 1320 199907454 94/00457 90 152 24 6 7 63 3.46 1.89 142 99/07/28 1320 199907454 94/00457 90 155 5 13.8 4.05 15.8 99/07/28 1340 199907456 94/00457 90 155 5 13.8 4.05 15.8 99/07/28 1340 199907456 94/00457 90 155 5 13.8 4.05 15.8 99/07/28 1340 199907456 94/00457 90 155 5 13.8 4.05 15.8 99/07/28 1340 199907456 94/00457 90 155 5 13.8 4.05 15.8 99/07/28 1340 1340 199907456 94/00457 90 155 5 13.8 4.05 13.8 99/07/28 1340 1425 94/00457 94/00457 90 155 5 13.8 90/07/28 1425 1425 94/00457 94/004 |           |                                   | 98/08/26      | 1340             | 199909262 | 94/00656 | 2.0      | 21               | 2,62             | 2.31  |     | 1.48  | 10          |
| 99/07/28 1250 199907459 94/00567 2.8 5.76 2.71 158 99/07/28 1255 199907459 94/00562 2.8 2.4 2.2 5.76 2.71 158 99/07/28 1300 19990454 94/00565 3.0 2.4 2.2 5.76 2.71 158 99/07/28 1300 19990452 94/00565 3.0 2.1 2 5.76 2.71 158 99/07/28 1300 19990452 94/00569 5.0 2.2 2.4 6 7.6 3.14 149 99/07/28 1300 19990745 94/00569 5.0 2.2 6.5 3.4 6 1.5 99/07/28 1300 19990745 94/00569 5.0 2.2 6.5 3.4 6 1.5 99/07/28 1300 19990745 94/00569 5.0 2.2 6.5 3.4 6 1.5 99/07/28 1300 19990745 94/00569 5.0 2.2 6.5 3.4 6 1.5 99/07/28 1300 199909265 94/00569 5.0 2.2 6.5 3.4 6 1.5 99/07/28 1300 199909265 94/00569 5.0 2.2 6.5 3.4 6 1.5 99/07/28 1300 199909265 94/00661 5.0 2.2 24 6 7 6.3 3.4 6 1.5 99/07/28 1300 199909265 94/00661 5.0 2.2 24 6 7 6.3 3.4 6 1.5 99/07/28 1300 199909266 94/00661 5.0 2.2 24 6 7 6.3 3.4 6 1.5 99/07/28 1300 199909266 94/00661 5.0 2.2 24 6 7 6.7 3.1 1 14.2 99/08/28 14.2 199909266 94/00661 5.0 2.1 5 6.8 5.0 2.7 1.4 14.2  |           |                                   | 99/07/28      | 1245             | 199907458 | 94/00580 | 0.2      | 24.9             | 6.31             | 25    |     | 1.88  | 10          |
| Grand Falls Flowage - Station #2         1259         199907461         94/00063         4.5         2.4         0.5         2.44         1.59           Grand Falls Flowage - Station #2         1300         199907461         94/00065         4.5         2.2         5.76         2.71         1.59           Grand Falls Flowage - Station #2         1615         199904919         94/00456         3.0         21.2         6.95         3.46         1.53           99/06/22         1640         199904920         94/00456         5.0         20         6.9         3.56         1.49           99/06/22         1640         199904920         94/00456         5.0         20         6.9         3.56         1.49           99/06/22         1640         199907454         94/00466         5.0         20         6.9         3.46         1.5           99/07/28         1320         199907456         94/00566         5.0         22         24.6         7.63         3.46         1.42           99/07/28         1330         199907456         94/00566         5.0         22         24.6         7.63         3.46         1.42           99/07/28         1340         199907456         94/00566  |           |                                   | 99/07/28      | 1250             | 199907459 | 94/00581 | 0.7      | 22.8             |                  | 40.00 |     | . 64  |             |
| Grand Falls Flowage - Station #2         99/06/72         1615         199904919         94/00454         0.2         24.2         6.95         3.46         1.53           99/06/72         1630         199904920         94/00456         3.0         21.2         6.95         3.46         1.49           99/06/72         1640         199904920         94/00456         5.0         20         6.9         3.56         1.49           99/07/72         1625         1645         199904921         94/00456         5.0         22         6.9         3.56         1.49           99/07/72         1320         199907455         94/00566         4.5         22.5         6.53         3.45         1.39           99/07/72         1340         199907457         94/00567         9.0         15.5         13.8         4.05         1.42           99/08/72         1410         199907457         94/00567         9.0         15.5         13.8         4.05         1.42           99/08/72         1420         199907457         94/00569         0.2         2.4         6.7         3.11         0.2         2.4         6.7         3.11         2.2         1.4         1.4         1.4 <td< td=""><td></td><td></td><td>98/07/28</td><td>1300</td><td>199907461</td><td>94/00583</td><td>4.5</td><td>38</td><td>5.76</td><td>2.71</td><td></td><td>38</td><td>5 5</td></td<>  |           |                                   | 98/07/28      | 1300             | 199907461 | 94/00583 | 4.5      | 38               | 5.76             | 2.71  |     | 38    | 5 5         |
| 99/06/72         1630         94/00455         3.0         21.2         6.9         3.56         1.49           99/06/72         1640         19990492         94/0045         5.0         20         6.9         3.56         1.49           99/06/72         1645         19990492         94/0046         5.0         20         6.9         3.56         1.49           99/07/28         1320         19990745         94/0056         4.5         22.5         8.53         3.46         1.5           99/07/28         1330         19990745         94/0056         4.5         22.5         8.53         3.46         1.42           99/07/28         1340         19990745         94/0056         4.5         22.5         8.53         3.46         1.62           99/07/28         1340         19990745         94/0056         5.0         22         6.7         3.14         1.62           99/07/28         1410         19990926         94/0056         5.5         21.5         6.7         3.14         2.2           99/08/26         1420         19990926         94/0066         5.5         21.5         6.7         3.14         1.27           99/08/26  | 6335735   | Grand Falls Flourage . Station #2 | CONUNC        | 1615             | 199904919 | SANDOASA | 0.5      | 24.2             | 86               | 3.46  |     | 1.53  | 30          |
| 1640         199804920         94/00456         50         20         69         3.56         1.49           1645         199804921         94/00467         9.0         13.2         7.64         3.63         1.49           1320         199807454         94/00467         9.0         12.2         24.6         7.63         3.45         1.5           1320         199807456         94/00586         5.0         22.5         6.53         3.46         1.42           1340         199807456         94/00587         9.0         15.5         13.8         4.05         1.42           1410         199809263         94/00669         5.5         21.5         6.7         3.11         0.2         1.37           1420         199809264         94/00660         5.5         21.5         6.82         2.96         1.27           1430         199809266         94/00662         9.0         17.5         8.56         3.77         1.4   |           |                                   | 99/06/22      | 1630             |           | 94/00455 | 3.0      | 212              |                  |       |     |       |             |
| 1645         19990/4921         94/00467         9.0         13.2         7.84         3.83         1.5           1325         19990/455         94/00564         0.2         24.6         7.63         3.45         1.38           1326         19990/455         94/00566         5.0         22.5         8.53         3.46         1.38           1340         19990/256         94/00567         9.0         15.5         13.8         4.05         1.42           1410         19990/256         94/00569         0.2         24         6.7         3.11         4.2           1420         19990/256         94/00661         5.0         21.5         6.82         2.96         1.27           1425         19990/256         94/00661         5.0         21.5         6.82         2.96         1.27           1430         19990/256         94/00662         8.0         17.5         8.56         3.27         1.4   |           |                                   | 99/06/22      | 1640             | 199904920 | 94/00456 | 5.0      | 9                | 6.9              | 3.56  |     | 1.49  | 30          |
| 1320         199807454         9400564         0.2         24.6         7.63         3.45         0.13         138           1325         199907456         9400586         4.5         22.5         6.53         3.46         0.13         138           1340         199907456         9400586         5.0         22         6.53         3.46         142           1410         199909263         9400587         9.0         15.5         13.8         4.05         1.62           1420         199909263         9400660         5.5         21.5         6.82         2.98         1.37           1430         199909266         9400661         5.0         21.5         6.56         2.98         1.27           1430         199909266         9400661         5.0         21.5         8.56         3.77         1.4   |           |                                   | 39/06/22      | 1645             | 199904921 | 94/00457 | 9.0      | 13.2             | 7.84             | 3.83  |     | 10.   | 8           |
| 1325         199907455         94/00585         4.5         22.5         0.53         3.46         0.13           1330         199907456         94/00587         5.0         22         0.53         3.46         1.42           1340         199902763         94/00587         9.0         15.5         13.8         4.05         1.62           1420         199903264         94/00660         5.5         21.5         6.7         3.11         0.22         1.37           1430         199903266         94/00661         5.0         21.5         6.82         2.96         0.22         1.27           1430         199903266         94/00662         8.0         17.5         8.56         3.27         1.44   |           |                                   | 99/07/28      | 1320             | 199907454 | 94/00564 | 0.2      | 246              | 7 63             | 3.45  |     | 1.38  | 10          |
| 1330         199907456         9400566         50         22         0.53         3.46         142           1340         199907457         9400567         9.0         15.5         13.8         4.05         162           1410         199909263         9400669         0.2         24         6.7         3.11         0.2         1.37           1425         199909265         9400661         5.0         21.5         6.82         2.96         1.27           1430         199909266         9400662         8.0         17.5         8.56         3.27         1.4  |           |                                   | 99/07/28      | 1325             | 199907455 | 94/00585 | 4.5      | 22.5             |                  |       |     |       |             |
| 1340         199807457         94/00567         94/00567         94/00567         94/00567         162         138         405         162           1410         199909263         94/00569         0.2         24         6.7         3.11         0.2         137           1420         199909265         94/00661         5.0         21.5         6.82         2.96         1.27           1430         199909266         94/00662         8.0         17.5         8.56         3.27         1.4  |           |                                   | 99/07/28      | 1330             | 199907456 | 94/00586 | 90       | 22               | 8.53             | 3.46  |     | 1 42  | 10          |
| 1410         199909263         94/00659         0.2         24         6.7         3.11         1.37           1420         199909264         94/00660         5.5         21.5         6.82         2.96         0.22         1.27           1425         199909266         94/00661         5.0         21.5         6.82         2.96         1.27           1430         199809266         94/00662         8.0         17.5         8.56         3.27         1.4   |           |                                   | 99/07/28      | 1340             | 199907457 | 94/00567 | 0.6      | 15.5             | 13.8             | 4.05  |     | 1.62  | 8           |
| 1420 199909264 94/00660 5.5 21.5 6.82 2.98 Q 2.2 127 1425 199909266 94/00661 5.0 21.5 6.82 2.98 1.27 1.27 1430 199909266 94/00662 9.0 17.5 8.56 3.27 1.44  |           |                                   | 99/08/26      | 1410             | 199909263 | 94/00659 | 0.2      | 24               | 67               | 3.11  |     | 1,37  | 15          |
| 1425 199902265 9400661 5.0 215 6.82 2.98 1.27<br>1430 199809266 94/00662 8.0 17.5 8.56 3.27 1.4  |           |                                   | 99/06/26      | 1420             | 199909264 | 34/00660 | 5.5      | 215              |                  |       |     |       |             |
| 1430 199908266 9400662 90 17.5 8.56 3.27 1.4   |           |                                   | 99/08/26      | 1425             | 199909265 | 94/00661 | 5.0      | 21.5             | 6.82             | 2.36  |     | 127   | 9           |
|  |           |                                   | 96/08/26      | 1430             | 199909256 | 34/00662 | 0.0      | 17.5             | 18               | 3.27  |     | 1.4   | R           |

 $L \approx b \omega b \omega w$  limit of quantification.  $\Omega \approx not a quality assured parameter. <math>T \approx trace$ 

Appendix 5b (cont.), 1999 St. Croix Lakes Study Field and Laboratory Data.
Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| 27 211<br>40 27 111<br>40 27 211<br>26 23 23 215<br>27 2 23 215<br>28 2 23 215<br>29 22 24<br>20 22 23 22 23<br>20 22 23 22 24<br>20 22 23 24<br>20 22 25<br>20 20 25<br>20 20 20 20 20 20 20 20 20 20 20 20 20 2   | Station #  | Location                      | Date     | Time<br>from ADT | Lab                    | Field #   | depth as  | Temp as | mg/l as<br>CaCO3 | 0 2 2 C | CMA | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Color as color units |
|--|------------|-------------------------------|----------|------------------|------------------------|-----------|-----------|---------|------------------|---------|-----|---------------------------------------|----------------------|
| Woodland Flowage - Salion #1   1910   198000000   9400047   4.7   7.1   2.56   2.9   0.47   1.45   | SC-MODS1   |                               | 99/07/11 | 1905             | 199905988              | 94/00515  | 0.2       | 21.1    | 2.95             | 2.09    |     | 1.49                                  | 8                    |
| Woodland Flowage - Station #1         990/07/20         990/07/20         900/0  |            |                               | 99/07/11 | 1910             | 199905990              | 94/00515  | 4.0       | 21.1    | 2 08             | 202     |     | 1 68                                  | 5                    |
| Woodland Flowage - Station #1         9906/23         0030         19906/900         94004/97         0.2         23.5         5.9         2.81         1.68           9006/23         0045         19906/900         94004/90         2.6         22.5         57.8         3         0.4         4.3         1.68           9006/23         0045         19906/900         94004/90         2.9         2.4         7.41         3.18         0.43         1.58           9007/18         1410         19906/900         94000460         2.9         2.4         7.41         3.18         0.37         1.17           9007/18         1417         19906/900         94000650         2.9         2.4         7.41         3.18         0.37         1.17           9007/18         1417         19906/900         94000650         3.0         2.2         2.7         7.71         3.18         1.44           9007/18         1417         19906/900         94000650         3.0         2.2         2.7         7.71         3.18         1.58           9007/18         1417         19906/900         94000650         3.0         2.2         2.2         7.71         3.14         1.44   |            |                               | 99/07/11 | 1918             | 199905991              | 94/00518  | 8.0       | 21.1    | 3.06             | 204     |     | 1.47                                  | 88                   |
| 990/6/22 0855 199904804 9,000489 2.6 22 272 711 316 0 4.3 16 990/6/22 08400490 5.9 215 5.0 5 578 3 0 4.3 16 990/6/22 08400490 5.9 215 5.0 5 578 3 0 4.3 16 990/6/22 08400490 5.9 215 5.0 5 572 711 316 0 37 15 990/6/22 1109 990/6/24 9,000568 9,000568 5.8 22 772 771 314 0 317 15 990/6/22 1109 990/6/24 9,000568 9,000568 5.8 22 772 771 314 0 2.4 144 990/6/22 1109 990/6/22 1109 9,000568 9,000568 5.8 22 772 777 314 0 2.4 144 990/6/22 1109 990/6/22 1109 9,000568 9,000569 9,00 | SC-WD1     | Woodland Flowage - Station #1 | 99/06/23 | 0830             | 199904903              | 94/00437  | 0.2       | 23.5    | 5.9              | 291     |     | 89                                    | 9                    |
| 990/02/2 0440 1990/04/3 9-0004/3 29 225 578 3 115 159 159 159 159 159 159 159 159 159  |            |                               | 99/06/23 | 0835             | 199904904              | 94/00438  | 2.6       | 23      |                  |         |     |                                       |                      |
| Septimor    |            |                               | 99/06/23 | 0840             | 199904905              | 94/00/39  | 2.9       | 225     | 5.78             | е (     |     | 1.6                                   | 8                    |
| 9907718 1410 199000555 9400055 0.2 27.7 711 318 0.37 168 9907718 1417 199000555 94000557 2.9 24 741 318 1.147 9907718 1417 199000559 94000557 2.9 24 741 318 9907718 1417 199000559 94000557 2.9 24 741 318 9907718 1300 19900959 9400055 3.0 22 777 314 0.24 1.44 9907718 1300 19900959 9400055 3.0 22 777 310 114 9907718 1300 19900957 9400055 3.0 22 777 310 114 9907718 1300 19900957 9400055 3.0 23 66.19 327 1.48 9907718 1300 19900957 9400055 2.0 23 66.19 327 1.65 9907718 1300 19900957 9400055 2.0 23 66.19 327 1.67 9900077 1100 19900957 9400055 2.0 22 778 315 1.67 9900077 110 19900957 9400055 2.0 22 778 315 1.67 9900077 110 19900957 9400055 2.0 22 2.18 7.29 315 1.67 9900077 110 19900957 9400055 2.0 22 2.18 7.29 315 1.67 9900077 110 19900957 9400055 2.0 22 2.18 7.29 315 1.67 9900077 110 19900957 9400055 2.0 22 2.18 7.29 315 1.67 9900077 110 19900957 9400059 2.0 22 2.18 7.29 315 1.67 9900077 110 19900957 9400059 2.0 22 2.18 7.29 315 1.67 9900077 110 19900957 9400059 2.0 22 2.18 7.29 315 1.67 9900077 110 19900957 9400059 2.0 22 2.18 7.29 315 1.67 9900077 9400059 9400059 2.0 22 2.18 7.29 315 1.67 9900077 9400059 9400059 2.0 22 2.18 7.29 315 1.67 9900077 9400059 9400059 2.0 22 2.18 7.29 315 1.67 9900077 9400059 9400059 2.0 22 2.18 7.29 315 1.67 9900077 9400059 9400059 2.0 2.18 7.29 315 1.67 9900077 9400059 9400059 2.0 2.18 7.29 315 1.67 9900077 9400059 9400059 2.0 2.0 2.18 7.29 315 1.67 9900077 9400059 9400059 2.0 2.0 2.18 7.29 0.0 2.9 0.0 9900774 9900077 9400059 9400059 2.0 2.0 2.0 2.0 2.0 0.0 9900774 9900077 9400059 9400059 9400059 040 |            |                               | 57/90/95 | 0645             | 199904906              | 94/00440  | n         | 21.5    | 900              | m       |     | 199                                   | 9                    |
| 9907/18 1417 199905656 9400559 24 741 316 0 37 117 19900566 9400559 26 24 741 316 0 37 117 19900566 9400559 26 24 741 316 0 37 117 19900566 9400559 26 22 771 314 0 37 167 1990057 1173 19900565 940055 30 22 771 314 0 24 144 144 141 141 141 141 141 141 141   |            |                               | 98/07/18 | 1410             | 199906583              | 94/00555  | 0.2       | 27.2    | 7.11             | 3.18    |     | 1.68                                  | 15                   |
| 99007/16 1147 199000569 9400055 29 27 77 314 144  99007/16 1147 199000569 9400057 29 27 77 314 144  99007/16 1125 1125 1125 1125 1125 1125 1125 11   |            |                               | 99/07/18 | 1412             | 199906584              | 94/00556  | 2.6       | 24      |                  |         |     |                                       |                      |
| Septiminary      |            |                               | 99/07/18 | 1417             | 199906585<br>100006586 | 94/00557  | C) 4      | 2 %     | 7.41             | 3.18    |     | 1.7                                   | 88                   |
| Septimental Playings - Station #1   Septimental Playings - Stati   |            |                               |          |                  | -                      | 20000000  | 9         | 1       | 30.              | 3       |     | 9                                     | 3                    |
| 990/02/2 1135 1990/0892 94/00/24 4 2 2 759 31 0 24  Whoodand Flowage - Station #2 990/02/2 1135 1990/0892 94/00/25 5 2 2 759 31 0 24  Whoodand Flowage - Station #2 990/02/2 1135 1990/0892 94/00/25 2 2 2 2 759 31 0 2 4 144  Whoodand Flowage - Station #2 990/02/2 0/720 1990/0892 94/00/25 2 2 2 2 2 2 2 2 2 3 5 64 2 97 159  990/07/19 1300 1990/02/2 1200 1990/05/2 94/00/25 2 2 2 2 2 2 2 3 5 64 2 97 159  990/07/19 1300 1990/05/2 94/00/25 2 2 2 2 2 2 2 3 5 67 151  990/07/19 1300 1990/05/2 94/00/25 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2  |            |                               | 99/08/22 | 1125             | 199908980              | 94/00623  | 0.2       | 22      | 7.71             | 3.14    |     | 1.44                                  | 8                    |
| Section #2 99/06/22 1135 199906929 94/00439 0.2 23 6.5 3.05 0.38 1.38 1.39 1.39 1.39 1.39 1.39 1.39 1.39 1.39  |            |                               | 98/08/22 | 1128             | 199908881              | 94/00624  | 4 1       | 28      | 7.68             |         |     |                                       |                      |
| Woodland Flowage - Station #7         99/06/72         07/25         199904899         94/00434         26         23         65         3.05         1.59         1.59           90/06/72         07/75         199904890         94/00434         2.6         2.3         6.5         3.05         0.38         1.59           99/06/72         07/75         199904802         94/00436         2.6         2.3         6.6         2.97         0.3         1.66           99/06/72         07/70         199904807         94/00456         2.6         2.2         5.64         2.97         1.66         1.66           99/06/72         07/70         199904807         94/00452         2.9         2.2         5.64         2.94         1.66         1.66           99/07/18         130         19990487         94/0052         2.6         2.4         5.24         3.05         1.67         1.67           99/07/18         1310         19990487         94/0052         5.0         2.2         2.6         3.6         3.5         1.67         1.67           99/07/18         1310         19990487         94/0052         5.0         2.2         2.6         3.6         3.6         1.67  |            |                               | 99/08/22 | 1135             | 19990883               | 94/00626  | 9 KG      | 3 2     | 197              | 3.00    |     | 1 25                                  | 5 5                  |
| Woodland Flowage - Station #2         98/06/23         07/20         199904890         94/00434         2.6         2.3         6.5         3.05         1.59         1.59           98/06/23         07/26         199904800         94/00434         2.6         2.3         6.5         3.6         2.97         0.38         1.59           98/06/23         07/26         199904801         94/00436         2.6         2.3         5.64         2.97         0.38         1.59           98/07/18         1300         199904801         94/00426         2.6         2.4         2.94         2.94         1.66           98/07/18         1300         199904672         94/00526         2.6         2.4         3.24         3.05         1.67           98/07/18         1301         199906574         94/00526         5.0         2.2         2.4         3.22         1.67           98/07/18         1310         199906877         94/00526         5.0         2.2         2.4         3.2         1.67           98/07/18         1310         199906877         94/00526         5.2         2.1         3.1         1.67           98/07/18         1310         199906877         94/00568  |            |                               |          |                  |                        |           |           |         |                  |         |     |                                       |                      |
| 990/6/23 07726 19990-0657 9400-456 25 25 5.64 297 0 38 159 990/6/23 07720 19990-0657 9400-456 25 22.5 5.64 297 0 318 990/6/23 0740 19990-0657 9400-456 25 22.5 5.64 297 151 990/7/16 1309 19990-0657 9400-652 25 24 3 5 6 1 9 1 166 990/7/16 1309 19990-0657 9400-652 25 24 3 6 24 3 6 1 167 990/7/16 1309 19990-0657 9400-652 25 24 3 6 24 3 6 1 167 990/8/22 1210 19990-0657 9400-652 52 21 8 7.49 3.14 990/8/22 1220 19990-0677 9400-652 52 21 8 7.49 3.14 990/8/22 1220 19990-0677 9400-657 53 20 9 3 6 1 99 990/8/22 1220 19990-0677 9400-698 3 22.7 20 9 3 14 990/8/22 1045 19990-0679 9400-698 5.7 20 6 199 990/8/29 1056 19990-0677 9400-698 5.7 20 6 3.47 1.99 990/8/29 1059 19990-0677 9400-698 5.7 20 6 2.56 2.52 990/8/29 1440 19990-0677 9400-698 5.7 20 6 2.56 2.56 2.59 990/7/19 1427 19990-0677 9400-698 5.7 20 6 2.56 2.56 2.59 990/7/19 1422 19990-0677 9400-698 5.7 20 6 2.56 2.56 2.59 990/7/19 1422 19990-0677 9400-698 5.7 20 6 2.56 2.56 2.59 990/7/19 1422 19990-0677 9400-698 5.7 20 6 2.56 2.56 2.59 990/7/19 1422 19990-0677 9400-698 5.7 20 6 2.56 2.56 2.59 990/7/19 1422 19990-0677 9400-698 5.7 20 6 2.56 2.56 2.59 990/7/19 1422 19990-0677 9400-698 6.7 20 2.9 2.46 2.56 2.56 2.59 990/7/19 1422 19990-0677 9400-698 6.7 20 2.2 2.9 5.44 2.54 2.64 2.69 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.56 2.56 2.59 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.56 2.56 2.59 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.56 2.56 2.59 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.59 0.699 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.59 0.699 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.59 0.699 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.59 0.699 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.59 0.699 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.59 0.699 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.59 0.699 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.59 0.699 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.59 0.699 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.59 0.699 990/7/19 1440 19990-0677 9400-698 6.7 20 6 2.59 0.699 990/7/19 1440 19990-0677 9400-698 6.7 | SC-WD2     | Woodland Flowage - Station #2 | 99/06/23 | 0720             | 199904899              | 94/00433  | 0.2       | 23      | 6.5              | 3.05    |     | 1.59                                  | \$                   |
| Subtolicity   Subscription   Subsc   |            |                               | 98/06/23 | 0725             | 199904900              | 94/00434  | 2.6       | 13      |                  |         |     |                                       |                      |
| 99007/18 1300 199906571 9400523 0.2 28.8 5.67 3.51 1.65 9907718 1300 199906571 9400524 2.9 24.1 5.24 3.05 1.67 99007/18 1306 199908573 9400524 2.9 24.1 5.24 3.05 1.67 99007/18 1306 199908677 9400526 5.0 22 6.19 3.22 1.67 99008/22 1215 199908877 9400651 2.7 21.8 7.53 3.13 99008/22 1220 129908877 9400687 5.3 22.9 3.5 1.97 99008/22 1220 199908878 9400652 5.2 21.8 7.49 3.14 1.33 99008/29 1045 199908879 9400687 5.3 20.9 3.47 1.99 99008/29 1045 199908679 9400689 5.7 20.6 3.47 1.99 99007/19 1427 199908677 9400680 5.7 20.6 5.56 2.52 99007/19 1427 199908677 9400640 3.0 24.5 5.6 2.54 2.48 0.059 99007/19 1427 199908677 9400640 3.0 24.5 5.6 2.54 0.099 99007/19 1427 199908677 9400640 3.0 24.5 5.6 2.54 0.099 99007/19 1420 199908677 9400640 3.0 24.5 5.6 2.54 0.099 99007/19 1440 199908677 9400640 3.0 22.2 3.5 5.44 2.54 0.099 99007/19 1440 199908677 9400640 3.0 22.2 3.5 5.44 2.54 0.099 99008/29 1348 199908677 9400640 3.7 2.7 4.47 2.94 0.099  |            |                               | 98/06/23 | 0730             | 199904901              | 94/00435  | 2.0       | N       | 0.64             | 2.97    |     | 1.65                                  | 9                    |
| 99/07/18 1300 199906571 94/00524 29 24.1 36.1 351 1.66 99/07/18 1300 199906572 94/00524 29 24.1 56.1 3.5 1.67 99/07/18 1306 199906573 94/00525 2.6 24.6 5.24 3.05 99/07/18 1300 199906574 94/00525 5.0 22 6.19 3.22 99/08/22 1210 19990878 94/0052 5.2 21.8 7.53 3.13 99/08/22 1220 19990878 94/0052 5.2 21.8 7.53 3.13 99/08/22 1220 19990878 94/0052 5.2 21.8 7.53 3.13 99/08/22 1045 19990887 94/0052 5.2 20.9 3.5 1.97 99/08/22 1045 199909307 94/0058 3.7 20.6 3.47 1.99 99/08/29 1045 199909307 94/0058 5.7 20.6 3.47 1.99 99/07/19 1427 19990657 94/00540 5.5 22.3 5.6 0.6 5.6 2.6 99/07/19 1437 199906671 94/00540 5.5 22.3 5.4 2.48 99/07/19 1437 199909307 94/00540 5.5 22.3 5.6 0.6 5.6 0.0 99 99/07/19 1432 199906671 94/00540 5.5 22.3 5.4 2.48 99/07/19 1440 199909307 94/00540 5.5 22.3 5.4 2.48 99/07/19 1440 199909307 94/00540 5.5 22.3 5.4 2.48 99/07/19 1440 199909307 94/00540 5.5 22.3 5.4 2.48 99/07/19 1440 199909307 94/00540 5.5 22.3 5.4 2.48 99/07/19 1440 199909307 94/00571 0.2 2.2 5.2 2.2 5.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0  |            |                               | 99/06/23 | 0740             | 199904902              | 94/00436  | in<br>eri | 22.5    | 5.84             | 2.94    |     | 1.65                                  | 8                    |
| 99007/18 1305 199908574 9400524 29 24.6 524 305 1.67 1.67 1.99908574 9400525 2.6 24.6 5.24 3.05 1.67 1.67 1.9990877 9400525 2.6 24.6 5.24 3.05 1.67 1.67 1.9990877 9400622 2.6 24.6 5.24 3.05 1.67 1.37 1.33 1.33 1.33 1.33 1.33 1.33 1.3  |            |                               | 99/07/18 | 1300             | 199906571              | 94/00523  | 0.2       | 26.8    | 29 9             | 3.51    |     | 1.66                                  | 20                   |
| Sinch Lake - Station #1 99/09/22 1210 199900877 94/00526 5.0 22 6.19 3.22 1.67 1.67 1.37 1.32 1.32 1.32 1.32 1.33 1.33 1.33 1.33   |            |                               | SENO/ITE | 306              | 1999060/2              | 34/00524  | 5.0       | 24.1    |                  | -       |     |                                       |                      |
| Sixth Lake - Station #1   99/08/22   1210   199900877   94/00621   27   21.8   7.49   3.14   1.32  |            |                               | 98/07/18 | 1310             | 199906574              | 94/00526  | 20.00     | 22 23   | 6.19             | 3.22    |     | 1.67                                  | 8 8                  |
| Such Lake - Station #1   99/08/22   1210   199908877   94/00621   27   21.8   7.49   3.14   1.32   |            |                               |          |                  |                        |           |           |         |                  |         |     |                                       |                      |
| Sinth Lake - Station #1 99/08/22 (120) 1999/08/19 94/00685 0.2 21.9 7.49 3.14 1.33 1.33 1.33 1.33 1.33 1.33 1.33   |            |                               | 99/08/22 | 1210             | 199908877              | 94/00619  | 0.5       | 25      | 7.6              | 3.15    |     | 1.37                                  | 0 :                  |
| Sizeth Lake - Station #1 99/08/29 1046 199909306 94/00686 0.2 22.9 3.5 1.97 0.827 20.9 3.5 1.97 0.828 0.724 0.827 0.827 0.827 0.828 0.827 0.828 0.827 0.828  |            |                               | 99/08/22 | 1220             | 199908679              | 94/00622  | 5.2       | 21.8    | 7.49             | 3.14    |     | 133                                   | t i                  |
| Section #1   Sec   | on continu | Chath I also Chathan Ma       | ocionos. | 9000             | 30000000               | 04000680  | 0         | 000     | 4                | 60      |     | 1000                                  | u                    |
| Botton Lake - Station #1 99/09/719 1427 199900609 5.7 20 6 3.47 1.99 0.774  Botton Lake - Station #1 99/07/19 1427 199900669 94/00639 0.2 24 6 5.56 2.52 0.658  99/07/19 1427 199900667 94/00639 0.2 24 6 5.56 2.52 0.698  99/07/19 1440 199900677 94/00640 5.5 22.3 6.06 2.56 0.698  99/07/19 1440 199900677 94/00640 5.5 22.3 6.06 0.698  99/08/29 1348 199900677 94/00642 5.5 22.3 5.48 0.698  99/08/29 1348 199900677 94/00642 5.5 22.9 5.44 2.54 0.089  | SC-SIAIN!  | State Care - State al         | 3800823  | 1066             | 199909000              | 94/00080  | W 6.      | 200     | 0.0              | in .    |     | 0.027                                 | n                    |
| 99/08/79 1058 199909306 94/00889 5.7 20.6 3.47 199 0.724  Botton Lake - Station #1 99907/19 1427 199906670 94/00540 5.5 22.3 24.6 5.56 2.52 0.658  99/07/19 1437 199906670 94/00540 5.5 22.3 0.658  99/07/19 1440 199906672 94/00542 5.5 22.3 6.06 2.56 0.659  99/08/29 1348 199908309 94/00671 0.2 22.9 5.44 2.54 0.789  99/08/29 1348 199908309 94/00671 0.2 22.9 5.46 2.56 0.687  |            |                               | SAMPLOS  | 1050             | 100000107              | 94/00/688 | 3 (*      | 7.00    | 3,66             | 1 00    |     | 0 774                                 | ur                   |
| Bolton Lake - Station #1         990/7/19         1427         199905669         94/00539         0.2         24.6         5.56         2.52         0.658           99/07/19         1437         199906670         94/005401         5.5         22.3         0.29         0.698           99/07/19         1440         199906671         94/005401         3.0         24.5         5.64         2.48         0.699           99/07/19         1440         199906672         94/005401         5.5         22.3         6.06         2.56         0.697           99/08/29         1348         199906879         94/00571         0.2         22.9         5.44         2.54         0.789           99/08/29         1355         199909310         94/00573         3.0         23         5.46         2.56         0.687           99/08/29         1355         1355         1355         1355         2.56         0.687   |            |                               | 99/08/29 | 1058             | 199909306              | 94/00689  | 100       | 20 6    | 3.47             | 3       |     | 0.724                                 | n un                 |
| 1437         1989006570         94000540         55         223         0         29           1432         198900677         94005401         3.0         24.5         564         248         0.698           1440         198900677         9400542         55         22.3         6.06         256         0.698           1348         198900309         9400677         0.2         22.9         544         2.54         0.789           1355         198003010         9400673         3.0         23         5.46         2.56         0.687           1356         198003031         9400673         4.7         2.7         4.77         2.54         0.789           1356         198003031         9400673         4.7         2.7         4.77         2.54         0.5687  | SC-BLTN1   | Botton Lake - Station #1      | 99/07/19 | 1427             | 199906669              | 94/00539  | 0.2       | 246     | 5.56             | 2.52    |     | 0.658                                 | S                    |
| 1432         199906671         94/005401         3.0         24.5         5.64         24.8         0.698           1440         199906672         94/00542         5.5         22.3         6.06         2.56         0.667           1348         199908309         94/00671         0.2         22.9         5.44         2.54         0.789           1355         199909310         94/00673         3.0         23         5.46         2.56         0.687           1358         199909311         94/00673         3.0         23         5.46         2.56         0.687           1358         199909311         94/00673         3.0         23         5.46         2.56         0.687   |            |                               | 99/07/19 | 1437             | 199906670              | 94/00540  | 5.5       | 22.3    |                  |         |     |                                       |                      |
| 1348 19990309 9400671 0.2 22.9 5.44 2.54 0.789<br>1355 19990310 9400673 3.0 23 5.46 2.56 0.687<br>1361 19990311 4400674 4.7 21.7 4.87 2.58 0.687   |            |                               | 99/07/19 | 1440             | 199906671              | 94/005401 | 3.0       | 24.5    | 5.64<br>6.06     | 2.48    |     | 0.659                                 | w 0                  |
| 1355 199809310 94000673 3.0 23 5.46 2.56 0.6897 1468 1998009311 9400073 3.0 73 5.46 2.56 0.6897  |            |                               | OCHBURO  | 87.48            | coodoos                | OALDNET!  | 0         | 200     | 8 44             | 200     |     | 0 780                                 | e                    |
| 116.8 100000111 GAMOWTA 67 217 4 RT 2 548  |            |                               | 90/08/29 | 1366             | 199909310              | 9400677   | 300       | 27.     | 2 46             | 2.50    |     | 0.709                                 | 3 W                  |
| 1 TO  |            |                               | 96/00/29 | 1368             | 199909311              | 94/00674  | 2 10      | 217     | 4.87             | 2.58    |     | 0.672                                 | n vo                 |

L = below limit of quantification. Q = not a quality assured parameter. T = trai

L = below limit of quantification. Q = not a quality assumed parameter

Appendix Sb (cont.), 1999 St. Croix Lakes Study Fleid and Laboratory Data. Values shown as zero (0) reflect no defectible value at the limit of quantification (see test methods at end of table).

| Station # | Date      | Time<br>from ADT | Lab #     | Field #  | Cond | Dissalved<br>Oxygen<br>mg/l | TOC mg/l as | × N×  | Mg/l as | NO N | E.   | SO4 SO4 | Secth | ,    | most as |
|-----------|-----------|------------------|-----------|----------|------|-----------------------------|-------------|-------|---------|--|------|---------|-------|------|---------|
| SC-FIFTH1 | 96/06/28  | 1810             | 199905177 | 94/00489 | 21.9 | 7.0                         | 4.71        | 0.323 | 1.08    | L 0                                      | 7 00 | 3.4     | 6.0   |      | 0       |
|           | 99/06/28  | 1825             | 199905178 | 54/00490 |      | 89 1                        |             | 0 200 | 90 0    |  | 900  | 200     | 2 4   |      | 0.006   |
|           | 98/06/28  | 1815             | 199905179 | 94/00491 | 27.9 | 0.7                         | 100         | 0.30  | 8 8     |  | 900  | 3       |       |      | 0.006   |
|           | 99/06/28  | 1830             | 199905180 | 94/00492 | 220  | 0.7                         | 4/1         | 0.283 | 8       |  | 0    | 2       |       |      |         |
|           | 00///10   | 1218             | 199906665 | 84/00535 | 24.3 | 7.8                         | 4.36        | 0.364 | 1.17    | L 0                                      | 7.09 | 2.9     | 5.3   | _    | 0       |
|           | 00/07/19  | 1220             |           | 94/00636 |      | 7.7                         |             |       |         | ٦  |      |         |       | -6   |         |
|           | 90/1/1/19 | 1225             | 199906667 | 94/00537 | 23.7 | 7.3                         | 4.41        | 0.374 | 1.12    | L 0                                      | 7.01 | 2.86    | 53    | de   | 0       |
|           | 80/1/18   | 1230             | 199906668 | 94/00538 | 23.9 | 5.8                         | 4.14        | 0.367 | 1.05    |  | 6.90 |         |       | _1   |         |
|           | 00/08/70  | 1200             | 199909301 | 94/00682 | 22.3 | 7.1                         | 4.59        | 0.394 | 1.20    | L 0                                      | 6.70 | 2.42    | 6.5   | 7    | 0       |
|           | 90,000    | 1208             |           | 94/00683 |      | 6.7                         |             |       |         |  |      |         |       |      |         |
|           | 9C/BU/90  | 1205             | 199909303 | 94/00684 | 22.1 | 9.6                         | 206         | 0.386 | 1.20    | L 0                                      | 6.68 | 2.25    |       | -1   | 0       |
|           | 99/08/29  | 1214             | 199909304 | 94/00685 | 27.6 | 0.1                         | 4.53        | 0.360 | 1.14    | 0  | 6.61 | 20      |       | _    | 0       |
| 1350 00   | 000000    | 1320             | 199904835 | 94/00474 | 28.3 | 7.9                         | 5.97        | 0.345 | 1.68    | L 0                                      | 7.04 | 27      | 6     | 7    | -       |
|           | 99/06/22  | 1330             |           | 94/00475 |      | 7.4                         |             |       |         |  |      |         |       |      | ,       |
|           | 99/06/22  | 1340             | 199904837 | 94/00476 | 28.7 | 7.4                         | 6.34        | 0.330 | 1.68    | -0                                       | 989  | 274     |       | ٠.   |         |
|           | 39/06/22  | 1350             | 199904938 | 94/00477 | 28.6 | 6.2                         | 6.12        | 0 331 | 1.73    |  | 98   | 2.6/    |       | 4    |         |
|           | 39/08/26  | 1320             | 199909259 | 94/00855 | 28.8 | 8.0                         | 5.23        | 0.408 | 1.78    | L 0                                      | 6.81 | 2.8     | 5.3   | -    |         |
|           | 99/08/26  | 1330             |           | 94/00656 |      | 7.2                         |             |       |         |  | -    | 97.0    |       |      |         |
|           | SCURONO   | 1335             | 199909261 | 94/00657 | 28.9 | 8.0                         | 5.11        | 0.333 | 1.50    | 7  | 6.78 | 2.46    | 7     | ٠. د |         |
|           | 99/08/26  | 1340             | 199909262 | 94/00658 | 28.8 | 7.2                         | 5.42        | 0.335 | 1.60    |  | 6 60 | 2.45    |       | _    |         |
|           | 99407728  | 1245             | 199907458 | 94/00580 | 28.9 | 7.5                         | 6.62        | 0.361 | 1.03    | L 0                                      | 7.04 | 2.86    | 9     | ف    | 0       |
|           | 99407728  | 1250             |           | 94/00581 |      | 9.9                         |             |       |         |  | -    | 0000    | 9 4   |      |         |
|           | 99/07/28  | 1255             | 199907460 | 94/00582 | 29.5 | 6.7                         | 6.11        | 0.328 | 8       | 7  | 9 6  | 2 20    |       | ٠. د |         |
|           | 99407728  | 1300             | 199907461 | 94/00583 | 29.8 | 5.2                         | 6.81        | 0.364 | 1.73    |  | 7 02 | 2.81    | *     | 4    |         |
| 6230      | 00006077  | 1616             | 199904919 | 94/00454 | 31.4 | 0.1                         | 09 9        | 0.303 | 1.67    | 0 7                                      | 7.15 | 2.61    | 3.1   | ٦    |         |
| 21.5      | 99/06/22  | 1630             |           | 94/00456 |      | 7.8                         |             |       |         |  |      |         |       |      | 1       |
|           | CCANADO   | 1640             | 199904920 | 94/00456 | 31.7 | 6.8                         | 6.30        | 0.294 | 1.66    | L 0                                      | 7.1  | 2.56    | 3.1   | _    | -       |
|           | 98/06/22  | 1645             | 198904921 | 94/00457 | 34.3 | 0.8                         | 7.56        | 0.307 | 1.60    |  | 7 02 | 2.43    |       |      | 000     |
|           | 90,070,00 | 1520             | 199907454 | 94/00584 | 31.5 | 7.7                         | 5.91        | 0.311 | 1.49    | 9  | 7.11 | 2.68    | 4.5   | -    |         |
|           | 99/07/28  | 1325             |           | 94/00585 |      | 6.8                         |             |       |         |  |      | -       | 0.0   |      | 000     |
|           | BC17/NG0  | 1330             | 199907456 | 94/00586 | 32.2 | 5.3                         | 6.31        | 0.320 | 1.48    | 5  | 8.94 | 2.53    |       |      | 000     |
|           | 99/07/28  | 1340             | 199907457 | 94/00587 | 43.5 | 0.1                         | 8 41        | 0.310 | 35.     | 0  | 6.97 | 2.28    |       |      | 000     |
|           | SCINCION  | 1410             | 199909263 | 94/00659 | 32.2 | 8.1                         | 4 93        | 0.295 | 1.42    | L 0                                      | 7.12 | 2.36    | 5.5   | _    | _       |
|           | 99/06/26  | 1420             |           | 94/00960 |      | 7.5                         |             |       |         |  | 0 0  | 0       | 0.0   |      | ,       |
|           | 99/08/26  | 1425             | 199909265 | 94/00661 | 31   | 7.7                         | 5.12        | 0.273 | 1.32    | 3 .                                      | 0 63 | 247     | 0 4   | ٠    | 0000    |
|           | 99/08/26  | 1430             | 199909266 | 94/00662 | 24.3 | 1.7                         | 236         | 0 331 | 101     | 7  | 0.00 | 47.7    | n     |      | 3       |
|           |           |                  |           |          |      |                             |             |       |         |  |      |         |       |      |         |

L = below limit of quantification. Q = not a quality assured parameter T = trace.

Appendix 5b (cont.), 1999 St. Croix Lakes Study Fleid and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| 99/07/11 1905 1996006988 99/07/11 1916 1996006988 99/07/11 1916 1996006981 99/07/11 1916 1996006981 99/07/11 1916 1996006981 99/07/11 1916 1996006981 99/07/13 1996006981 99/07/18 1417 199600698 99/07/18 1417 199900698 99/06/22 1136 199900698 99/06/22 1136 199900697 99/07/18 1306 199900677 99/07/18 1306 199900677 99/07/18 1306 199900677 99/07/18 1306 199900677 99/07/18 1306 199900677 99/07/18 1306 199900677 99/07/18 1306 199900677 99/07/18 1306 199900677 99/07/18 1306 199900677 99/07/18 1306 199900677 99/07/18 1306 199900677 99/07/18 1306 199900677 99/07/19 1427 199900677 99/07/19 1427 199900677 99/09/07/19 1427 199900677 99/09/07/19 1427 199900677 99/09/07/19 1427 199900677 99/09/07/19 1427 199900677 99/09/07/19 1427 199900677 99/09/07/19 1427 199900677 99/09/07/19 1426 199900677 99/09/07/19 1426 199900677 99/09/07/19 1426 199900677 99/09/07/19 1426 199900677 99/09/07/19 1426 199900677 99/09/07/19 1426 199900677 99/09/07/19 1426 199900677 99/09/07/19 1426 199900677 99/09/07/19 1426 199900677 99/09/07/19 1427 199900677 99/09/07/19 99/09/07/19 99/09/07/19 99/09/07/19 99/09/07/19 99/09/07/19 99/09/07/19 99/09/07/1 | Station # | Date     | from ADT | 99         | Field #   | usie/cm | Охудел | SE US | Se X  | No.  | EZ | 8 |      | SO4  | # E     | g a  |
|--|-----------|----------|----------|------------|-----------|---------|--------|-------|-------|------|----|---|------|------|---------|------|
| 8900/273 0830 0830 94/00517 22.4 77.4 9.14 0.218 180 L 0 682 2.19 2.7  | SC-MODS1  | 99/07/11 | 1905     | 199005988  | 94/00515  |         | 7.7    | 8.71  | 0.213 | 28   | -3 | 9 | 6.64 | 22   | 27      |      |
| Second 2    |           | 99/07/11 | 1910     | 199905990  | 94/00517  | 22.4    | 7.4    | 9.14  | 0.218 | 1.60 | 1  | 0 | 6 62 | 2 19 | 27      |      |
| BADONIZ2   CREAT   C   |           | 11/0996  | 1918     | 199905901  | 94/00518  | 22.6    | 7.3    | 89    | 0.219 | 1.60 | ٦  | 0 | 6.63 | 2.15 | 2.7     |      |
| 9000023         0845         198000440         94000440         31.3         6.6         77.0         250         157         1.0         7.11         2.53         2.6           9000023         0846         198000406         94000440         31.3         4.4         6.8         0.317         1.00         1.0         7.11         2.53         2.6           90007718         1417         1980006863         94000656         2.2         7.12         6.0         0.317         1.00         L         7.24         2.45         2.6           9007718         1417         1980006863         94000657         3.2         9.4         6.1         0.347         1.65         L         0.71         2.45         2.6           90000072         1135         1980006863         94000657         3.2         9.4         6.1         0.37         1.7         L         0.7         2.4         2.2           90000000         1417         1418         1490006863         94000666         3.0         1.7         1.0         7.11         2.53         2.6           90000000         1418         1418         1418         1418         1418         1418         1418         1418   | C-WD1     | 99/06/23 | 0830     | 199904903  | 94/00437  | 30.8    | G)     | 7.30  | 0.304 | 5    | -  | 0 | 2 44 | 09.0 |         |      |
| 990007718   1410   198904905   9400449   31   41   707   0.307   150   1,0   710   2.53   2.6   390007718   1412   198904905   9400449   31.3   4.4   6.89   0.259   157   1.0   7.11   2.51   2.6   390007718   1412   198904905   9400055   3.27   12.8   6.90   0.347   1.50   1.0   7.2   2.45   2.6   390007718   1412   198906905   9400052   3.2   3.6   6.25   0.337   1.7   1.0   7.12   2.43   2.6   3.6   3.6   3.6   3.5   3.5   3.6   3.5   3.6   3.5   3   |           | 99/06/23 | 0835     |            | 94/00438  |         | 9.6    | 99.1  |       | 8    | d  | 3 | 6.11 | 7 28 | 2.6     |      |
| 84000773   1410   199006893   94006400   313   44   8.88   0.289   157   L 0   711   251   25   26   38007718   1410   199006889   94006593   327   128   6.08   0.337   171   180   L 0   724   2.45   2.6   94007718   1412   199006889   94006593   322   34   6.18   0.337   171   L 0   772   2.44   2.5   2.6   9400771   1413   199006889   94006593   322   34   6.18   0.337   171   L 0   772   2.44   2.5   2.6   9400772   172   19900889   9400623   30.9   8.2   5.18   0.283   157   L 0   7.18   2.5   2.4   2.5   2.6   9400772   172   19900889   9400023   30.9   8.2   5.29   0.283   157   L 0   7.18   2.29   4.2   2.6    |           | 99/06/23 | 0840     | 199904905  | 84/00439  | 31      | 6.1    | 7.07  | 0.307 | 1.80 | 7  | 0 | 7.10 | 2.53 | 26      | -    |
| 88007773 1410 199006693 3400559 327 128 6.09 0.317 1.80 L 0 724 245 24 24 28 8807773 1410 199006693 32.7 128 6.09 0.337 171 L 0 772 247 24 26 8807773 1410 199006693 32.9 3.6 6.25 0.337 171 L 0 772 247 24 26 8807773 1410 199006993 34000523 31.1 8.2 5.08 0.259 1.57 L 0 772 247 24 4 2 88060722 1135 199006893 9400523 31.1 8.2 5.08 0.259 1.57 L 0 771 2.59 4.2 9400622 1135 199006893 9400623 30.9 8.2 5.08 0.259 1.57 L 0 771 2.59 4.2 9400622 0.00 0.00 0.00 0.00 0.00 0.00 0.00   |           | 52.500E6 | 0845     | 199904906  | 94/00440  | 31.3    | 4.4    | 6.80  | 0.299 | 1.57 | _  | 0 | 7.11 | 2.51 | 26      | -    |
| 94007719   1412   199006986   94000597   327   926   925   937   171   125   94000597   94000597   926   925   926   927   171   125   94000598   94000598   929   926   925   926   927   171   125   94000598   94000598   929   925   926   927   171   125   928   42   928   927   928      |           | 90/07/18 | 1410     | 199906583  | 94/00555  | 32.7    | 12.8   | 609   | 0.317 | 1.80 | -  | 0 | 7 24 | 245  | 36      |      |
| Manual   |           | 99407/18 | 1412     |            | 94/00556  |         | 10.0   |       |       |      |    |   |      | 1    | 2.6     |      |
| ### 99/00/22 1126 199900969 94/00/23 31:1 82 5:16 02/3 171 L 0 712 243 26 99/00/22 1136 199900969 94/00/23 31:1 82 5:28 0.256 157 L 0 711 259 42 99/00/22 1136 199900969 94/00/23 30:8 82 5:28 0.256 157 L 0 716 259 42 99/00/23 1136 199900969 94/00/23 30:8 82 5:28 0.256 157 L 0 716 259 42 99/00/23 1136 199900969 94/00/23 30:8 67 7:37 0.256 159 L 0 716 2.46 42 99/00/23 07740 199900967 94/00/23 30:8 67 7:37 0.256 159 L 0 716 2.46 42 99/00/23 07740 199900977 94/00/23 30:8 67 7:37 0.256 159 L 0 716 2.52 26 99/07/18 1306 199900977 94/00/23 30:8 67 7:37 0.256 159 L 0 716 2.52 26 99/07/18 1306 199900977 94/00/23 30:8 6.7 7:37 0.256 159 L 0 716 2.52 26 29 99/07/18 1306 199900977 94/00/23 30:8 6.4 7 7:37 0.256 159 L 0 716 2.52 26 29 99/07/18 1306 199900977 94/00/23 30:9 6.4 7 7:37 0.256 159 L 0 716 2.52 26 29 99/07/18 1310 199900977 94/00/23 30:9 6.4 7 7:37 0.256 129 L 0 716 2.4 7 2 5 2 9 9/07/22 120 199900977 94/00/22 30:7 6.4 7 0.276 129 L 0 716 2.5 2 2 9 9/07/22 120 199900977 94/00/22 30:7 6.4 7 0.276 129 L 0 716 2.9 2 2 9 9/07/22 120 199900977 94/00/22 30:7 6.4 7 0.256 129 L 0 717 2.7 5 2 2 9 9/07/22 120 199900977 94/00/22 30:7 6.4 7 0.256 129 L 0 717 2.7 5 2 2 9 9/07/22 120 199900977 94/00/22 2.7 7 6 40:7 0.256 129 L 0 717 2.7 5 5 1 9/07/22 120 199900977 94/00/22 2.7 7 6 40:7 0.256 129 L 0 717 2.7 5 5 1 9/07/22 120 120 120 120 120 120 120 120 120 1  |           | 36407/18 | 1417     | 199906585  | 94/00557  | 32.7    | 9.6    | 6.16  | 0.347 | 1.85 | -  | 0 | 7.23 | 2.47 | 2.6     |      |
| 9400472   1125   198004890   9400623   31.1   8.2   5.10   0.273   159   L 0   717   2.59   4.2     9400472   1135   198004892   9400625   30.9   8.2   5.28   0.255   157   L 0   716   2.46   4.2     9400472   1135   198004892   9400625   30.9   8.2   5.28   0.255   157   L 0   716   2.46   4.2     9400472   0.725   198004892   9400625   30.9   8.2   5.28   0.255   157   L 0   716   2.46   4.2     9400472   0.725   198004802   9400623   30.8   6.7   7.37   0.256   159   L 0   705   2.52   2.6     9400472   0.725   198004802   9400623   30.8   6.7   7.37   0.256   159   L 0   707   2.56   2.9     9400778   1306   198004802   9400623   32.1   15.5   0.267   170   L 0   705   2.52   2.6     9400778   1306   19800487   9400623   32.1   15.5   6.53   0.346   178   L 0   707   2.56   2.9     9400779   1306   19800487   9400623   32.1   1.5   1.0   0.264   1.5   L 0   7.14   2.46   2.9     9400779   1306   19800487   9400623   32.1   1.5   1.0   0.264   1.5   L 0   7.14   2.46   2.9     9400779   1006   19800487   9400623   30.8   6.4   4.7   0.264   1.5   L 0   7.16   2.62   4.5   2.9     9400779   1006   198006879   9400687   30.8   6.4   4.7   0.264   1.5   L 0   7.16   2.63   4.5   2.9     9400779   1447   199006879   9400687   2.2   7.5   7   |           | 900/10   | 2        | 090009961  | BCCOOV#8  | 32.9    | 3.6    | 929   | 0.337 | 1.71 | -1 | 0 | 7.12 | 2.43 | 2.6     |      |
| 9400022         1128         94000224         9400022         940002         9400023         94000023         9400023         9400023  |           | 99/06/22 | 1126     | 199908880  | 94/00623  | 31.1    | 8.2    | 5.16  | 0.273 | 28.  | ۵  | 0 | 7.17 | 2.50 | 4.2     | -    |
| Manual/Line   1350   198900882   9400683   30.9   8.2   5.8   0.286   157   L 0   716   2.66   4.2   |           | 99/06/22 | 1126     |            | 94/00624  |         | 6.2    |       |       |      |    |   |      |      |         | 1    |
| 9800022   1735   198004899   9400433   30.8   8.7   7.56   0.306   1.63   1.57   1.0   7.16   2.46   4.2     9800023   0725   198004899   9400433   30.8   6.7   7.56   0.306   1.63   1.0   7.05   2.52   2.6     9800023   0725   198004801   9400435   30.7   6.7   7.37   0.296   1.60   1.0   7.05   2.52   2.6     980007718   1.306   198006801   9400435   30.7   1.15   6.25   0.346   1.56   1.0   7.07   2.56   2.9     98007718   1.306   198006871   9400623   32.7   5.5   6.51   0.306   1.78   1.0   7.74   2.5   2.9     98007718   1.306   198006877   9400625   32.7   5.5   6.51   0.306   1.78   1.0   7.74   2.46   2.9     98007719   1.307   198006879   9400625   30.7   6.7   4.9   6.53   0.364   1.78   1.0   7.74   2.46   2.9     98007719   1.407   198006879   9400629   30.7   6.7   4.9   0.346   1.26   1.0   7.74   2.46   2.9     98007719   1.407   198006879   9400629   2.2   6.1   4.9   0.346   1.26   1.0   6.70   2.81   5.3     98007719   1.407   198006879   9400629   2.2   6.1   4.9   0.346   1.26   1.0   6.70   2.81   5.3   1.0     98007719   1.407   198006879   9400629   2.2   5.6   6.1   0.356   1.20   1.0   6.70   2.44   5.3   1.0     98007719   1.407   1.98006879   9400629   2.2   7.7   4.0   0.356   1.20   1.0   6.70   2.73   5.5   1.0     98007719   1.407   1.98006879   9400629   2.2   7.7   4.0   0.356   1.20   1.0   6.70   2.73   5.5   1.0     98007719   1.407   1.98006879   9400629   2.2   7.7   4.0   0.356   1.20   1.0   6.7   7.7   2.73   5.5   1.0     98007719   1.407   1.98006879   9400629   2.2   7.7   4.0   0.356   1.20   1.0   6.7   7.7   2.7   5.5   1.0     98007719   1.407   1.98006879   9400629   2.2   7.7   4.0   0.356   1.20   1.0   6.7   7.7   2.7   5.5   1.0     98007719   1.407   1.98006879   9400629   2.2   7.7   4.0   0.354   1.0   0.0   1.0   7.7   2.7   5.5   1.0     98007719   1.407   1.98006979   9400629   2.2   7.7   4.0   0.354   1.0   0.0   1.0   0.3   1.0   0.0     |           | 98008/22 | 1130     | 199906662  | 94/00625  | 30.9    | 8.2    | 5.28  | 0.256 | 1.57 | _0 | 0 | 7.18 | 2.68 | 4.2     | _    |
| 99006723 0720 199904899 94/00433 30.8 6.7 7.56 0.306 1.63 L 0 7.05 2.52 2.6 9900673 0720 199904899 34/00433 30.8 6.7 7.56 0.306 1.63 L 0 7.05 2.52 2.6 9900673 94/00435 30.7 6.7 7.37 0.299 1.60 L 0 7.07 2.56 2.6 99006778 17.00 199904807 94/0052 3.2 11.5 6.2 1.0 0.306 1.58 L 0 7.07 2.56 2.9 99007718 1300 199906877 94/0052 3.2 1.5 6.5 1.0 0.340 1.78 L 0 7.04 2.46 2.9 99009771 1.0 199906877 94/0052 3.2 1.0 0.340 1.78 L 0 7.05 2.2 1.0 9900977 94/0052 3.2 1.0 0.340 1.78 L 0 7.05 2.0 1.0 9900977 94/0052 3.0 1.0 0.340 1.78 L 0 7.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1   |           | SENOBAZZ | 138      | 199808683  | 94/00626  | 30.9    | 8.2    | 2 08  | 0.253 | 1.57 | -1 | 0 | 7.16 | 2.46 | 4.2     | -    |
| 99006/23         0725         94/00434         67         737         0299         1.0         7.05         2.5         2.6           99006/23         0730         199904902         94/00436         30.7         67         7.37         0.299         1.0         7.07         2.52         2.6           99006/718         1300         199904902         94/00436         30.7         67         7.37         0.299         1.0         7.07         2.56         2.6           9907/18         1300         199906574         94/00526         32.9         9.3         6.51         0.340         1.78         1.0         7.14         2.5         2.9           9907/18         1306         199906574         94/00526         32.7         5.5         6.51         0.340         1.78         1.0         7.14         2.5         2.9           9907/18         1300         199006574         94/00526         32.7         5.5         6.51         0.340         1.78         1.0         7.14         2.5         2.9           99007/19         1300         1045         54/00657         30.7         8.2         4.97         0.271         1.54         1.0         7.14         2.5<  | C-WD2     | 99/06/23 | 07.20    | 199904899  | 94/00433  | 30.8    | 6.7    | 7.58  | 902.0 | 183  | *  | 0 | 2.06 | 080  | 9       |      |
| 98/06/22         0730         199804601         94/00/35         307         67         737         0.296         160         L         0         708         2.52         2.6           98/06/23         0740         199804602         94/00/36         30.6         5.6         7.81         0.306         150         L         0         707         2.56         2.6           9907/18         1300         199804671         94/00/26         32.7         15.5         6.55         0.306         175         L         0         7.14         2.5         2.9           9907/18         1306         199904674         94/00/25         32.7         5.5         6.51         0.340         175         L         0         7.14         2.4         2.9           9907/19         1310         199904674         94/00/25         32.7         5.5         6.51         0.340         178         L         0         7.14         2.4         2.9           9907/19         120         199046879         94/00/25         30.7         8.2         4.34         0.340         1.78         L         0         7.14         2.4         5.3           9908/27         172         <  |           | 88/06/23 | 0725     |            | 94/00434  |         | 6.7    |       |       | 3    | 9  | , | 3    | 30.3 | 0.6     |      |
| 99007/18 1300 19990657 94/00436 30.8 5.8 7.81 0.306 15.9 L 0 707 25.6 2.6 99007/18 1300 19990657 94/00523 32.1 11.5 6.25 0.336 17.5 L 0 77.4 2.6 2.9 99007/18 1300 19990657 94/00525 31.9 7.9 6.53 0.336 17.5 L 0 77.4 2.6 2.9 99007/18 1310 19990657 94/00525 32.7 5.5 6.51 0.340 17.9 L 0 77.4 2.4 2.9 2.9 99007/18 1310 19990867 94/00525 32.7 5.5 6.51 0.340 17.9 L 0 77.6 2.6 2.9 99007/19 13.0 19990867 94/0052 30.7 6.2 4.9 0.340 17.9 L 0 77.6 2.6 2.9 4.5 9900872 17.20 19990887 94/0052 30.7 6.2 4.9 0.24 15.4 15.4 L 0 77.6 2.6 5.3 4.5 9900879 10.45 19990887 94/0052 2.2 5.5 5.0 0.346 12.0 L 0 77.6 2.6 5.3 5.3 9900879 10.45 19990887 94/0058 2.2 5.5 5.0 0.346 12.0 L 0 7.17 2.73 5.5 99008719 14.27 19990867 94/0058 2.2 5.5 5.0 0.356 12.0 L 0 7.17 2.73 5.5 99007/19 14.27 19990867 94/0058 2.2 5.5 5.0 0.356 12.0 L 0 7.17 2.73 5.5 9907/19 14.27 19990867 94/0058 2.2 5.5 7.7 4.0 0.294 0.99 L 0 7.17 2.7 2.7 5.5 9907/19 14.27 19990867 94/0054 2.2 5.5 7.7 4.0 0.294 0.99 L 0 7.17 2.7 2.7 5.5 9907/19 14.27 19990867 94/0054 2.2 5.5 7.7 4.0 0.294 0.99 L 0 7.17 2.7 2.7 5.5 9907/19 14.2 19990877 94/0054 2.2 5.7 7.6 4.0 0.294 0.99 L 0 7.13 2.7 5.5 9907/19 14.2 19990877 94/0054 2.2 5.7 7.6 4.0 0.294 0.99 L 0 7.13 2.7 5.5 9907/19 14.2 19990877 94/0054 2.2 5.7 7.6 4.0 0.294 0.99 L 0 7.13 2.7 5.5 9907/19 14.2 19990877 94/0054 2.2 5.7 7.6 4.0 0.294 0.99 L 0 7.13 2.7 5.2 9907/19 14.4 5.3 12.6 12.0 0.34 11.5 L 0 6.91 2.2 94/0054 1.2 0.3 5.0 930087 1.3 6.0 0.34 11.5 L 0 6.9 2.2 94/0054 1.3 6.0 0.34 11.5 L 0 6.9 2.7 5.0 94/0054 1.3 6.0 0.34 11.5 L 0 6.9 2.7 5.0 94/0054 1.3 6.0 0.34 11.5 L 0 6.9 2.7 5.0 94/0054 1.3 6.0 0.34 11.5 L 0 6.9 2.7 5.0 94/0054 1.3 6.0 0.34 11.5 L 0 6.0 0. |           | 98/06/23 | 0730     | 199904901  | 94/00435  | 30.7    | 6.7    | 7.37  | 0.298 | 1,60 | -  | 0 | 7.06 | 252  | 26      |      |
| 99007/18 1300 199900657 94000524 32:1 115 6:25 0342 154 L 0 7:14 25 2:9 29 99007/18 1300 1999006574 94000524 32:1 15 6:25 0336 17:5 L 0 7:24 2:46 2:9 29 99007/18 1300 1999006574 94000525 32:1 1300 1999006574 94000525 32.7 5:5 6:51 0340 17:8 L 0 7:14 2.49 2.9 29 99007/18 1300 1999006574 94000525 32.7 5:5 6:51 0340 17:8 L 0 7:16 2:65 2.9 9900672 12:0 1999006579 9400052 30.7 8.2 4.75 0.264 15:5 L 0 7:16 2:62 4.5 9900672 12:0 199900679 9400052 30.7 8.2 4.97 0.277 15:4 L 0 7:16 2:63 4.5 9900672 12:0 199900879 9400052 22.4 7.0 4.64 0.349 12:2 L 0 6:00 2.44 5.3 99007/19 1427 199900669 9400059 22.2 5.5 5.0 0.356 12:0 L 0 7:17 2.73 5.5 99007/19 1427 19990067 2400059 22.2 5.5 7.7 4.01 0.294 0.99 L 0 7:17 2.73 5.5 99007/19 1440 19990067 24.00069 24.5 7.3 4.01 0.294 0.394 11:0 L 0 6:01 2.2 9400067 24.5 5.5 7.7 4.01 0.294 0.99 L 0 7:17 2.73 5.5 940007/19 1440 19990067 24.00069 24.5 7.3 4.01 0.349 11:0 L 0 6:01 2.2 9400007 24.5 99007/19 1440 19990067 24.00067 24.5 7.3 4.04 0.349 11:0 L 0 6:01 2.3 5.5 9400007 24.5 5.5 9400007 24.5 7.3 5.5 94000000000000000000000000000000000000   |           | 99/06/23 | 0740     | 199904902  | 94/00436  | 30.8    | 5.8    | 7.81  | 0.306 | 1.58 | -  | 0 | 7.07 | 2.56 | 26      |      |
| 99407/18 1308 199906573 94/00524 31.9 7.9 653 0.336 1.75 L 0 723 2.65 2.9 99407/18 1305 199906574 94/00525 31.9 7.9 653 0.336 1.75 L 0 7.14 2.49 2.9 2.9 99407/18 1310 199906574 94/00525 32.7 5.5 6.51 0.340 1.78 L 0 7.16 2.29 2.9 99407/19 1220 199908679 94/00622 30.7 8.2 4.97 0.271 1.54 L 0 7.16 2.63 4.5 9940872 1720 199908879 94/00622 30.7 8.2 4.97 0.271 1.54 L 0 7.15 2.63 4.5 9940872 1055 199909879 94/00622 2.2 6.9 4.94 0.349 1.28 L 0 6.70 2.61 5.3 9940879 1055 199909879 94/00629 2.2 5.5 5.09 0.356 1.29 L 0 6.70 2.61 5.3 99407/19 1427 199906679 94/00639 2.2 5.5 5.09 0.296 1.20 L 0 7.17 2.73 5.5 199907/19 1427 199906679 94/00639 2.5 7.7 4.01 0.296 1.00 L 0 7.13 2.77 5.5 99407/19 1432 199906672 94/00639 2.5 7.7 4.01 0.294 0.99 L 0 7.13 2.77 5.5 99407/19 1432 19990672 94/00677 24.8 7.3 4.04 0.317 1.13 L 0 6.91 2.2 bettom   |           | 99/07/18 | 1300     | 199906571  | 94/00523  | 32.1    | 11.5   | 6.25  | 0.342 | 1.84 | -  | 0 | 7.14 | 25   | 2.0     |      |
| 98/07/19 1305 199906674 94/00525 31.9 7.9 653 0.336 175 L 0 723 2.66 2.9 98/07/19 1310 199906674 94/00525 32.7 5.5 6.51 0.340 1.78 L 0 7.14 2.49 2.9 98/07/19 1310 199906674 94/00525 32.7 5.5 6.51 0.340 1.78 L 0 7.16 3.21 4.5 99/08/22 1225 129908879 94/00622 30.7 8.2 4.97 0.264 1.56 L 0 7.16 2.63 4.5 99/08/22 1225 199908879 94/00622 30.7 8.2 4.97 0.271 1.54 L 0 7.15 2.63 4.5 99/08/23 1055 199908305 94/00687 22.4 7.0 4.64 0.413 1.27 L 0 6.70 2.61 5.3 99/08/23 1056 199908305 94/00689 22.2 5.5 5.09 0.356 1.29 L 0 6.70 2.44 5.3 99/07/19 1427 199906699 94/00639 22.2 5.5 5.09 0.356 1.00 L 0 7.17 2.73 5.5 99/07/19 1437 199906677 94/00639 2.2 2 5.7 7.6 4.07 0.294 0.99 L 0 7.17 2.73 5.5 99/07/19 1437 199906677 94/00639 2.2 2 2.7 7.6 4.04 0.317 1.13 L 0 6.91 2.2 bettlom 19990878 1356 19990871 24.5 7.2 3.89 0.334 1.15 L 0 6.91 2.2 bettlom 19900872 1356 19990871 24.5 7.2 3.89 0.334 1.15 L 0 6.91 2.2 bettlom 19900872 1356 19990871 24.5 7.2 3.89 0.334 1.15 L 0 6.91 2.2 bettlom 19900872 1356 1356 1356 1356 1356 1356 1356 1356  |           | 99/07/18 | 1306     |            | 94/00524  |         | 6.6    |       |       |      |    |   |      |      | 2.9     |      |
| 99/06/22 1210 19990877 94/00526 32.7 5.5 651 0.340 178 L 0 7.14 2.49 2.9 99/06/22 1210 19990877 94/00622 30.8 6.4 5.13 0.267 1.70 L 0 7.16 3.21 4.5 99/08/22 1220 19990877 94/00622 30.7 8.2 4.5 0.264 1.56 L 0 7.16 2.62 4.5 99/08/22 1220 19990879 94/00622 30.7 8.2 4.97 0.271 1.54 L 0 7.16 2.63 4.5 99/08/23 1055 94/00687 22.4 7.0 4.64 0.413 1.27 L 0 6.09 2.2 5.3 5.3 99/08/29 1059 199908307 94/00689 22.2 5.5 5.09 0.356 1.29 L 0 6.70 2.81 5.3 99/08/29 1059 199908679 94/00689 22.2 5.5 5.09 0.356 1.29 L 0 7.17 2.73 5.5 99/07/19 1427 199908679 94/00639 2.5 7 7 4.07 0.294 1.00 L 0 7.17 2.73 5.5 99/07/19 1432 199908672 94/00640 2.5 7 7.6 4.07 0.294 1.00 L 0 7.17 2.73 5.5 99/07/19 1440 19990872 94/00671 2.8 7.3 4.04 0.317 1.13 L 0 6.91 2.2 bettom 19900872 1.35 1.35 1.35 1.35 1.35 1.35 1.35 1.35   |           | 99/0//18 | 1305     | 199906573  | 94/00525  | 31.9    | 7.9    | 6.53  | 0.336 | 1,75 | _  | 0 | 7.23 | 2.66 | 2.9     |      |
| 99/06/22 1210 19990877 94/00619 30.8 8.4 5.13 0.267 1.70 L 0 7.16 3.21 4.5 99/08/22 1215 199908879 94/00622 30.7 8.2 4.75 0.264 1.55 L 0 7.15 2.62 4.5 99/08/22 1220 199908879 94/00622 30.7 8.2 4.97 0.271 1.54 L 0 7.16 2.63 4.5 99/08/23 1045 199908305 94/00689 22.6 6.9 4.54 0.413 1.27 L 0 6.99 2.32 5.3 99/08/29 1059 199908307 94/00689 22.2 5.5 5.09 0.356 1.29 L 0 6.00 2.44 5.3 99/08/19 1427 199908699 24/00689 22.2 5.5 5.09 0.356 1.29 L 0 7.17 2.73 5.5 99/07/19 1432 199908671 94/02540 2.57 7.6 4.00 0.297 1.00 L 0 7.17 2.73 5.5 99/07/19 1440 19990872 94/00540 2.57 7.6 4.00 0.297 1.00 L 0 7.13 2.77 5.5 99/07/19 1440 19990872 94/00541 2.5 7.7 7.6 4.00 0.297 1.00 L 0 7.13 2.77 5.5 99/07/19 1440 19990872 94/00541 2.5 7.7 7.6 4.00 0.297 1.00 L 0 7.13 2.77 5.5 99/07/19 1440 19990872 94/00571 2.45 7.3 4.04 0.317 1.15 L 0 6.91 2.2 bettom   |           | 81//0/88 | 1310     | 1989060/4  | 84/00526  | 32.7    | 5.5    | 651   | 0.340 | 1.78 | _  | 0 | 7.14 | 2.48 | 2.9     | ٦    |
| 99/08/22 1275 199908879 94/00622 30.7 8.2 4.75 0.264 155 L 0 7/15 2.62 4.5 99/08/22 1220 199908879 94/00622 30.7 8.2 4.97 0.27/1 1.54 L 0 7/15 2.63 4.5 99/08/23 1045 199908305 94/00688 22.4 7.0 4.64 0.413 1.27 L 0 6.99 2.32 5.3 99/08/29 1059 199908307 94/00689 22.2 5.5 5.09 0.356 1.29 L 0 6.00 2.44 5.3 99/08/19 1427 199908689 94/00539 25.4 7.6 4.07 0.296 1.00 L 0 7/17 2.73 5.5 99/07/19 1427 199908671 94/025401 25.5 7.7 4.01 0.294 0.99 L 0 7/13 2.77 5.5 99/07/19 1440 199908672 94/005401 25.5 7.6 4.00 0.397 1.00 L 0 7/13 2.77 5.5 99/07/19 1440 19990872 94/005401 24.5 7.3 4.04 0.317 1/15 L 0 6.91 2.2 bettom  |           | 99/08/22 | 1210     | 199908677  | 94/00619  | 30.8    | 9.4    | 5.13  | 0.267 | 1.70 | ف  | 0 | 7.16 | 3.21 | 4.5     | end  |
| 98/08/22   1220   199908879   94/00686   22 6 6 9 4 94 0 349   128   L 0 7.16   2.63 4.5     98/08/29   1045   199908305   94/00686   22 6 6 9 4 94 0 349   128   L 0 6.70   2.61 5.3     98/08/29   1056   199908307   94/00689   22 2 5.5 5.09   0.356 1.29   L 0 6.09   2.44 5.3     98/07/19   1427   199908679   94/00640   22 5 5 5 5 9 0 0.356 1.00   L 0 7.17   2.73 5.5     98/07/19   1427   199908671   94/00640   25 5 7.7   4.01   0.294   0.99   L 0 7.00   2.73 5.5     98/07/19   1437   199908672   94/00640   25 5 7.7   4.01   0.294   0.99   L 0 7.00   2.73 5.5     98/07/19   1432   199908672   94/00640   25 5 7.7   4.01   0.294   0.99   L 0 7.00   2.73 5.5     98/07/19   1432   199908672   94/00640   25 7.7   2.64 0.99   L 0 7.00   2.73 5.5     98/07/19   1432   19990871   94/00640   25 7.7   2.64 0.99   L 0 7.00   2.73 5.5     98/07/19   1432   19990871   94/00640   25 7.7   2.64 0.99   L 0 7.00   2.73 5.5     98/07/19   1430   19990871   94/00640   2.64 7.3 4.04   0.317 113 L 0 6.91 2.2     98/08/29   1356 19990871   94/00673   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   235   245 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   25 6 7.2   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 2.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 3.89   0.334 115 L 0 6.91 2.2     98/08/29   24.5 7.2 2.5     98/08/29   24.5 7.2 2.5     98/08/29   24.5 7.2 2.5     98/08/29   24.5 7.2 2.5     98/08/29   24.5 7.2 2.5     98/08/29   24.5 7.2 2.5     98/08/29   24.5 2   |           | 98/08/22 | 1215     | 199908878  | 94/00621  | 30.6    | 8.2    | 4.75  | 0.264 | 1.55 | _  | 0 | 7.15 | 2.62 | 4.5     | _    |
| 98/08/29         1045         199/08/29         94/00686         22.6         6.9         4.94         0.349         1.28         L         0         6.70         2.61         5.3           98/08/29         1055         94/00687         22.4         7.0         4.64         0.413         1.27         L         0         6.09         2.32         5.3           98/08/29         1056         19990860         94/00689         22.2         5.5         5.09         0.356         1.29         L         0         6.0         2.44         5.3           98/07/19         1427         19908669         94/00639         25.4         7.6         4.07         0.296         1.00         L         0         7.17         2.73         5.5           98/07/19         1427         199008671         94/00540         25.5         7.7         4.07         0.296         1.00         L         0         7.17         2.73         5.5           98/07/19         1440         199008672         94/00542         25.7         7.6         4.04         0.296         1.00         L         0         7.17         2.73         5.5           98/02/29         1348         1590086   |           | 27/90/95 | 027      | 199908879  | 94/00622  | 30.7    | 8.2    | 4 97  | 0.271 | 25.  | _  | 0 | 7.16 | 2.63 | 4.5     |      |
| 99/08/29 1056 199909307 54/00687 61 61 64 0413 127 L 0 669 2.32 5.3 99/08/29 1058 199909307 54/00689 2.2.2 5.5 5.09 0.356 1.29 L 0 669 2.32 5.3 99/08/29 1427 199909669 94/00689 2.2.2 5.5 5.09 0.356 1.29 L 0 660 2.44 5.3 99/07/19 1427 199909669 24/00540 2.5.4 7.6 4.07 0.296 1.00 L 0 7.17 2.73 5.5 99/07/19 1432 199909672 94/00540 2.5.7 7.6 4.00 0.297 1.00 L 0 7.13 2.77 5.5 99/07/19 1440 199909672 94/00540 2.5.7 7.5 4.04 0.317 1.13 L 0 6.91 2.2 bettom 99/08/29 1356 19990971 94/05/3 24.5 7.2 3.89 0.334 1.15 L 0 6.91 2.2 bettom   | SXTH1     | 99/08/29 | 1045     | 199908305  | 94/00686  | 226     | 60     | 2     | 0.349 | 128  | -  | c | 6.70 | 2.00 | 2       |      |
| 98/08/29 1050 199908307 54/00689 22.4 7.0 464 0.413 1.27 L 0 6.69 2.32 5.3 5.9 98/08/29 1058 199908609 54/00689 22.2 5.5 5.09 0.356 1.29 L 0 6.60 2.44 5.3 5.9 98/07/19 14.27 199908609 24/05.5 7.7 4.01 0.296 1.00 L 0 7.17 2.73 5.5 98/07/19 14.37 199908671 94/005401 25.5 7.7 4.01 0.294 0.99 L 0 7.00 2.73 5.5 98/07/19 14.40 199908672 94/005401 25.5 7.7 4.01 0.294 0.99 L 0 7.13 2.71 5.5 98/07/19 14.40 199908672 94/005401 24.5 7.3 4.04 0.317 1.13 L 0 6.91 2.72 bettoom 99/08/29 1356 19990871 94/05/7 24.5 7.2 3.89 0.334 1.15 L 0 6.91 2.72 bettoom  |           | 99/08/29 | 1065     |            | 94/00687  |         | 9.4    |       |       |      | ì  |   |      | -    | 2 6     | i    |
| 98/07/19 1427 199909669 94/00689 22.2 5.5 5.08 0.356 1.28 L 0 6.60 2.44 5.3 98/07/19 1427 199909669 94/00540 2.5 7.7 4.01 0.296 1.00 L 0 7.17 2.73 5.5 98/07/19 1437 94/005401 25.5 7.7 4.01 0.294 0.99 L 0 7.20 2.73 5.5 98/07/19 1440 199909672 94/005401 25.5 7.7 4.04 0.317 1.13 L 0 6.91 2.2 bettom 99/08/29 1356 199909310 94/00673 24.5 7.2 389 0.334 1.15 L 0 6.91 2.2 bettom  |           | 99/06/29 | 1050     | 199909307  | 84/00668  | 22.4    | 7.0    | 4.64  | 0.413 | 1.27 | ٥  | 0 | 669  | 2.32 | (1)     | oni  |
| 98/07/19 1427 199908689 94/00539 25.4 7.6 4.07 0.296 1.00 L 0 7.17 2.73 5.5 5.5 98/07/19 1432 199908671 94/005401 25.5 7.7 4.01 0.294 0.99 L 0 7.20 2.73 5.5 98/07/19 1440 199908672 94/00542 25.7 7.6 4.00 0.297 1.00 L 0 7.13 2.71 5.5 98/07/19 1348 199908310 94/00571 24.8 7.3 4.04 0.317 1.13 L 0 6.91 2.2 bettom 99/08/29 1356 199908310 94/00673 24.5 7.2 3.89 0.334 1.15 L 0 6.91 2.2 bettom   |           | 99/06/29 | 1058     | 199909308  | 94/00689  | 222     | 5.5    | 5.09  | 0.356 | 1.29 | _  | 0 | 099  | 2.44 | 53      | -    |
| 1432 199906671 94/005401 25.5 7.7 4.01 0.294 0.99 L 0 7.20 2.73 5.5 1440 199906672 94/00542 25.7 7.6 4.00 0.297 1.00 L 0 7.13 2.71 5.5 1546 199908309 94/00673 24.5 7.2 389 0.334 1.15 L 0 6.91 2.32 bettorn 1356 199908310 94/00673 24.5 7.2 389 0.334 1.15 L 0 6.91 2.32 bettorn   | BLTNI     | 98/07/19 | 1427     | 199906669  | 94/00539  | 28.4    | 7.6    | 4.07  | 0.296 | 1.00 | -1 | 0 | 7.17 | 2.73 | 5.5     | _    |
| 1440 199906672 94/00542 25:7 7.6 4:00 0.297 1:00 L 0 7:30 2.73 5:5 1340 199906672 94/00572 25:7 7.6 4:00 0.297 1:00 L 0 7:33 2.71 5:5 1346 199908309 94/00673 24:5 7:2 3:89 0.334 1:15 L 0 6:91 2:32 bettom 1:356 199908310 94/00673 24:5 7:2 3:89 0.334 1:15 L 0 6:91 2:32 bettom   |           | 81/10/88 | 1437     | ********** | 34/00540  |         | 7.0    |       |       |      |    |   |      |      | 5.5     |      |
| 1440 199908672 94/00542 25.7 7.6 4.00 0.297 1.00 L 0 7.13 2.71 5.5 1346 199908309 94/00671 24.8 7.3 4.04 0.317 1.13 L 0 6.91 2.2 battom 1355 199908310 94/00673 24.5 7.2 3.89 0.334 1.15 L 0 6.91 2.32 battom  |           | 80//086  | 1432     | 136906671  | 94/005401 | n   0   | 7.7    | 4.01  | 0.284 | 0.38 |    | 0 | 7.20 | 2.73 | 5.5     | ف    |
| 1346 199908309 94/00671 248 7.3 4.04 0.317 1.13 L 0 6.91 2.2 bettern 1355 199908310 94/00673 24.5 7.2 3.89 0.334 1.15 L 0 6.91 2.32 bettern  |           | BU/DBS   | 1440     | 199906672  | 94/00542  | 29.7    | 7.6    | 4.00  | 0.297 | 1.8  |    | 0 | 7.13 | 2.71 | 5.5     | -    |
| 1355 199909310 9400673 24.5 7.2 3.89 0.334 1.15 L 0 6.91 2.32 befrom   |           | 99/06/29 | 1346     | 198908309  | 94/00571  | 24.8    | 7.3    | 4.04  | 0.317 | 1.13 |    | - | 6.91 | 22   | hefform | cosi |
| The same of the sa |           | 99/08/29 | 1366     | 199909310  | 94/00673  | 245     | 72     | 3.80  | 0 334 | 3++  |    |   | 200  | 2000 |         | 9 .  |

Appendix 5b (cont.), 1999 St. Croix Lakes Study Fleid and Laboratory Data. Values shown as zero (0) refect no detectible value at the limit of quantification (see test methods at end of table).

| 1810   199905177   9400499   <10   0.3   L 0   0   0   0   0   0   0   0   0   |             | T SHN | NOS    | NO3   | TKN    | N.    | HARD  | AL    | AS    |
|--|-------------|-------|--------|-------|--------|-------|-------|-------|-------|
| 99006728 1810 199905177 94/00489 <10 03 L 0 99006738 1825 198905178 94/00481 03 L 0 99007719 1728 199905180 94/00536 <10 02 L 0 99007719 1728 199905180 94/00536 <10 02 L 0 99007719 1725 199905807 94/00536 <10 01 L 0 99007719 1725 199906667 94/00536 <10 01 L 0 99007719 1725 199906667 94/00536 <10 01 L 0 99007719 1725 199906667 94/00682 <10 01 L 0 9900872 1720 199906807 94/00682 <10 01 L 0 9900872 1720 199908301 94/00682 <10 01 L 0 9900872 1720 199908303 94/00685 <10 01 L 0 9900872 1720 199908303 94/00685 <10 01 L 0 9900872 1720 199908261 94/00685 <10 01 L 0 9900872 1720 199907461 94/00685 <10 01 L 0 9900872 1720 199907461 94/00687 <10 01 L 0 9900872 1720 1720 1720 1720 17200887 <10 01 L 0 9900872 1720 1720 17200887  1720 1720 L 0 9900872 1720 1720 17200887  17200887  1720 L 0 9900872 1720 17200887  17200887  1720 1720 L 0 9900872 1720 17200887  1720 17200887  1720 1720 L 0   | NTU residue | N N   | N N N  | No. N | Se Now | појаз | CaCO3 | MA M  | As as |
| 99/06/28 1810 199905/17 94/0049 <10 03 L 0 99/06/28 1815 199905/17 94/00492 <10 03 L 0 99/06/28 1815 199905/180 94/00492 <10 03 L 0 0 99/06/28 1820 199905/180 94/00492 <10 03 L 0 0 99/06/28 1820 199905/180 94/00492 <10 03 L 0 0 99/06/29 1720 199906/68 94/006/29 <0.10 03 L 0 0 99/06/29 1720 199906/68 94/006/29 <0.10 03 L 0 0 99/06/22 1720 199906/69 94/006/29 <0.10 03 L 0 0 99/06/22 1720 199906/69 94/006/29 <0.10 03 L 0 0 99/06/22 1720 199906/93 94/006/29 <0.10 03 L 0 0 99/06/22 1720 199906/93 94/006/29 04/006/29 04/006/29 09/06/22 1720 199906/93 94/006/29 04/006/29 09/06/22 1720 199906/93 94/006/29 04/006/29 09/06/29 1720 199906/93 94/006/29 09/06/29 09 |             |       |        |       |        |       |       |       |       |
| 990/6/28   1815   1999/6/18   9400-491   0.4 L 0   0.4 L | ٦           | 0 7   | 0 7    | 7     | 9      | 9     | 5.7   | 0.031 |       |
| 99006729 1330 199906665 94/00635 <10 02 L 0 99006719 1218 199906665 94/00635 <10 02 L 0 99007719 1220 199906665 94/00635 <10 02 L 0 99007719 1220 199906665 94/00635 <10 01 L 0 9900672 1220 199906666 94/00682 <10 01 L 0 9900672 1220 199906669 94/00682 <10 01 L 0 9900672 1220 139906669 94/00682 <10 01 L 0 9900672 1320 199904939 94/00684  <10 01 L 0 9900672 1320 199904939 94/00685   | 1           |       |        |       | 000    |       | 9 9   | 0 000 |       |
| 99/07/19 1218 199906665 94/00535 <10 02 L 0 99/07/19 1225 199906667 94/00536 04 L 0 99/07/19 1220 199906667 94/00537 04 L 0 99/08/29 1200 199906697 94/00683 04/00684 01 L 0 99/08/29 1205 199909301 94/00685 01 L 0 99/08/29 1205 199909304 94/00685 01 L 0 99/08/22 1300 199904935 94/00477 01 L 0 99/08/22 1300 199904939 94/00477 01 L 0 99/08/22 1300 199904939 94/00477 01 L 0 99/08/26 1300 199904939 94/00657 01 L 0 99/08/26 1300 19990/461 94/00658 01 D 0 99/08/22 1615 19990/461 94/00658 01 D 0 99/08/22 1615 19990/461 94/00668 01 D 0 99/08/22 1615 19990/481 94/00668 01 D 0 99/08/22 1640 19990/481 94/00668 01 D 0 99/08/22 1640 19990/487 94/00688  | -           | L 0   | 100    | 1 1   | LOO    | - 00  | 5.5   | 0.035 |       |
| 99/07/19 1220 99/07/19 1225 99/07/19 1225 99/07/19 1225 99/07/28 1225 1220 199906669 94/00633 99/06/22 1220 199906669 94/00684 99/06/22 1220 199906693 94/00685 99/06/22 1220 199907459 99/06/22 1220 199907459 99/07/28 1225 90/07/28 1225 99/07/28 1225 90/07/28 1225 90/07/28 1225 90/07/28 1225 90/07/28 1225 90/07/28 1225 90/07/28 1225 90/07/28 1225 90/0 |             | 0     | 0      | -     | -      |       |       | 0     |       |
| 99/07/19 1225 199906667 94/00637 0.3 L 0 0 99/07/19 1230 19990668 94/00683 0.10 0.1 L 0 0 0.0 0.2 0.0 0.1 0.0 0.1 0.0 0.1 0.1 0.0 0.1 0.1  |             |       |        | 2     |        | 2     | 4.1   | 0.021 | -     |
| 99008728 1200 199908301 9400683 040 L 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | 7           |       |        |       |        |       | 88    | 0000  | -     |
| 99/08/29         1200         199903901         94/00682         <10         01         L         0           99/08/29         1208         199903903         94/00683         <10   |             | L 0   | L 0    | 0 7   | L 0    | L 0   | 6.5   | 0.029 |       |
| 99/08/29 1208 94/00683 94/00684 01 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | -           | 0     | 0      | 0     | 200    | -     | 0     | 000   | ,     |
| 99/08/29 1214 19990303 94/00684 010 L 0 99/08/29 1214 19990303 94/00685 22 L 0 0 99/06/22 1330 199904935 94/004/75 010 0 0 L 0 0 99/06/22 1340 199904938 94/004/75 010 0 0 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | ,           |       | o<br>o | 3     | 0.63   |       | 0.0   | 0.018 | d     |
| 99/06/22 1320 199904935 94/00475 <10 06 L 0 99/06/22 1320 199904937 94/00475 <10 06 L 0 99/06/22 1330 199904937 94/00476 <10 06 L 0 99/06/22 1330 199904937 94/00477 07 L 0 07 L 0 99/06/22 1330 199904937 94/00477 07 L 0 07 L 0 09/06/22 1330 199904939 94/006/26 02 L 0 0 07 L 0 09/06/26 1335 199907459 94/006/26 03 L 0 0 07 L 0 0 09/06/22 1335 199907459 94/006/26 03 L 0 0 04 L 0 0 09/06/22 1530 199907451 94/006/29 04/006/20 03 L 0 0 09/06/22 1530 199907451 94/006/26 04/006/26 09/06/22 1645 199907451 94/006/26 09/06/22 1640 199907454 94/006/26 09/06/22 1645 199907457 94/006/26 07 L 0 0 09/06/22 1645 199907457 94/006/27 07 L 0 0 09/06/22 1645 199907457 94/006/27 04/006/26 09/06/22 1645 199907457 94/006/26 07 L 0 0 09/06/22 1645 199907457 94/006/27 04/006/26 04/006/26 04/006/26 04/006/26 04/006/26 04/006/26 04/006/26 04/006/26 1410 199907457 94/006/26 04/006/26 | 7           | ٦ 0   | 0 7    |       | 0.20   |       | 88    | 0.017 |       |
| 99/06/22 1320 199904935 94/00475 <10 0.6 L 0 0.99/06/22 1330 199904937 94/00477 0.0 0.6 L 0 0.99/06/22 1340 199904938 94/00477 0.7 L 0 0.99/06/22 1350 19990328 94/00477 0.7 L 0 0.99/06/22 1350 19990328 94/006/56 0.1 0 0.2 L 0 0.99/06/22 1340 19990326 94/006/56 0.1 0 0.9 L 0 0.99/07/28 1255 19990746 94/006/58 0.1 0 0.9 L 0 0.99/07/28 1255 19990746 94/006/63 0.1 0 0.9 L 0 0.99/07/28 1255 19990746 94/006/63 0.1 0 0.9 L 0 0.99/07/28 1320 19990745 94/006/63 0.1 0 0.9 L 0 0.99/07/28 1320 19990745 94/006/63 0.1 0 0.9 L 0 0.99/07/28 1320 19990745 94/006/63 0.1 0 0.9 L 0 0.99/07/28 1320 199907457 94/006/63 0.0 0.1 0 0.9 L 0 0.99/07/28 1320 199907457 94/006/63 0.0 0.0 L 0 0.99/07/28 1320 199907457 94/006/64 0.0 0.9 L 0 0.99/07/28 1320 199907457 94/006/64 0.0 0.9 L 0 0.99/07/28 1320 199907457 94/006/64 0.0 0.0 0.0 L 0 0.99/07/28 1320 199907457 94/006/64 0.0 0.0 0.0 L 0 0.99/07/28 1320 199907457 94/006/64 0.0 0.0 0.0 L 0 0.99/07/28 1320 199907457 94/006/64 0.0 0.0 0.0 L 0 0.99/07/28 1320 199907457 94/006/64 0.0 0.0 0.0 L 0 0.99/07/28 1320 199907457 94/006/64 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.  | -           | 0.113 | 0 7    | L 0   | 0.32   | 100   | 7.6   | 0.033 | 1 1   |
| 99/06/22 1330 199904937 94/00475 0.6 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | 0 7         | L 0   | 0 7    | 0 7   | 0.29   | 0 7   | 6     | 0.039 | 0     |
| 99/06/22 1350 199904938 94/00477 0.7 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |             |       | (      |       |        |       |       |       |       |
| 99/08/26 1320 1999/02/59 94/00655 02 L 0 99/08/26 1320 1999/02/51 94/00657 02 L 0 99/08/26 1335 1999/02/51 94/00657 02 L 0 99/07/28 1246 1999/07/460 94/00658 04/00658 04/00658 09/07/28 1226 1999/07/460 94/00682 04/00682 05 L 0 99/07/28 1255 1999/07/461 94/00682 05/07/28 1200 1999/07/461 94/00682 05/07/28 1300 1999/07/461 94/00682 05/07/28 1320 1999/07/28 1320 1999/07/26 94/00685 04/00686 07/28 1325 1999/07/28 1320 1999/07/26 94/00686 07/28 1320 1999/07/26 94/00686 07/28 1320 1999/07/26 94/00686 07/28 1320 1999/07/26 94/00686 07/28 1320 1999/07/26 94/00686 07/28 1320 1999/07/26 94/00686 07/28 1320 1999/07/26 94/00686 07/28 1340 1999/07/28 1340 1999/08/26 94/00686 07/28 1340 1999/08/26 94/00689 07/2 L 0 1999/08/26 1410 1999/08/26 94/08/26 94/08/26 1410 1999/08/26 94/08 | . i.        | 0     | 0 7    | 0 7   | 0.31   | 0     | 0     | 0.00  | 7     |
| 99/08/26 1330 1999/08/59 94/00/65 02 L 0 99/08/26 1330 1999/08/56 04/06/56 03 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | _           | 0     | 0 7    | 0 7   | 0.26   | L 0   | 9.4   | 0.044 | 7     |
| 99/08/26 1335 1999/02/26 94/00/656 02 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | _           | 0 7   | 0 7    |       | 0.27   | 0 7   | 6     | 0.015 | 0 7   |
| 99/08/26 1330 1999/08/26 94/00654 0.2 L 0 99/08/26 1340 1999/08/26 194/00654 0.0 d L 0 99/08/26 1340 1999/08/26 94/00658 0.0 d L 0 99/08/26 1256 1999/07/46/0 94/00681 0.6 L 0 99/08/22 1630 1999/07/46/1 94/00683 0.6 L 0 99/08/22 1630 1999/07/46/1 94/00683 0.6 L 0 99/08/22 1640 1999/07/26 1999/07/26 1999/07/26 1320 1999/07/26 1320 1999/07/26 94/00685 0.0 d L 0 99/08/26 1320 1999/07/26 94/00685 0.0 d L 0 99/08/26 1410 1999/07/26 94/00689 0.0 d C 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |             |       |        |       |        |       |       |       |       |
| 99/07/28 1245 1999/07456 94/00581 03 L 0 99/07/28 1255 1999/07456 94/00582 010 04 L 0 99/07/28 1255 1999/07450 94/00583 010 04 L 0 99/07/28 1255 1999/07450 94/00583 010 09 L 0 99/07/28 1300 1999/07451 94/00584 010 09 L 0 99/07/28 1320 1999/07454 94/00584 010 03 L 0 99/07/28 1320 1999/07454 94/00585 010 03 L 0 99/07/28 1320 1999/07454 94/00585 010 03 L 0 99/07/28 1320 1999/07454 94/00585 010 L 0  | 0           | 0 7   | 0 7    | L 0   | 0.27   | 0 7   | 00)   | 0.012 | 0 7   |
| 99/07/28 1245 1999/07458 94/00581 <10 04 L 0 0 99/07/28 1255 1999/07458 94/00582 <10 04 L 0 0 99/07/28 1255 1999/07459 94/00582 055 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  | _           | 0.011 | 0 7    | 0     | 0.28   | 0     | (E)   | 0.013 |       |
| 99/07/28 1255 1999/07/46/0 94/00581 05 L 0 99/07/28 1255 1999/07/46/0 94/00582 05 L 0 99/07/28 1300 1999/07/46/1 94/00583 06 L 0 99/06/22 1640 1999/04/29 94/00456 09 L 0 99/06/22 1640 1999/07/28 1320 1999/07/45/4 94/00584 <10 03 L 0 99/07/28 1320 1999/07/45/4 94/00584 <10 03 L 0 99/07/28 1320 1999/07/45/4 94/00586 07 L 0 99/07/28 1320 1999/07/45/ 94/00586 07 L 0 99/07/28 1340 1999/07/45/ 94/00586 07 L 0 99/07/28 1340 1999/07/45/ 94/00586 07 L 0   | ٠           | 0.01  | 0 7    | 0 7   | 0.31   | 0 7   | 8.5   | 0.017 | L 0   |
| 99/07/28 1300 1999/0461 94/00683 06 L 0 99/07/28 1300 1999/0461 94/00683 06 L 0 99/06/22 1640 1999/0492 94/00466 09 L 0 99/07/28 1320 1999/07454 94/00584 <10 03 L 0 99/07/28 1320 1999/07454 94/00586 07 L 0 99/07/28 1320 1999/07454 94/00586 07 L 0 99/07/28 1320 1999/07454 94/00586 07 L 0 99/07/28 1340 1999/07457 94/00586 07 L 0 99/08/26 1410 1999/07457 94/00660   | 4           |       |        |       |        |       |       |       |       |
| 99006/22 1615 199904919 9400454 <10 0.9 L 0 0.9 L 0 0.9 C 0.0 0.9 C 0.0 0.0 C  | . د         | 0.014 | 0 7    | 0 7   | 0.31   | 0 7   | 8.4   | 0.018 | 0 7   |
| 98/06/22         1615         199904919         94/00454         <10   | ف           | 0.027 |        |       | 0.30   |       | (F)   | 0.021 | 7     |
| 1630 1640 199904920 94/00456 1645 199904921 94/00456 1645 199904921 94/00564 410 03 1,0 0  | 0 7         | 0     | 0      | 0     | 0.28   | 0     | 11.2  | 0.043 | -     |
| 1640 199904920 94/00456 0.9 L 0 1645 199904921 94/00564 <10 0.9 L 0 1320 199907454 94/00564 <10 0.3 L 0 1320 199907455 94/00565 0.0 C L 0 13410 199907457 94/00659 0.2 L 0 1410 159909263 94/00669 0.2 L 0 1420 159909263 94/00669   |             |       |        |       |        | ı     |       | 3     | ,     |
| 1645         199904921         94/00467         0.9         L         0           1320         199907454         94/00584         <10  | 0 7         | 0 7   |        |       | 0.32   | 0 7   | 115   | 0.043 |       |
| 1320 199907454 94/00584 <10 0.3 L 0<br>1325 94/00585 04/00586 07 L 0<br>1340 199907457 94/00587 62 L 0<br>1410 199909263 94/00669 02 L 0<br>1420 199909263 94/00669  | -1          | 0.081 | 0 7    | 0 7   | 0.45   | 0 7   | 12.5  | 0.085 | LO    |
| 1325 199907456 94/00585 07 L 0<br>1340 199907457 94/00587 62 L 0<br>1410 159909263 94/00669 02 L 0<br>1420 159909263 94/00660  | -4          | 0.011 | 0 7    | 0 7   | 0.28   | 0     | 10.9  | 0.016 | 0     |
| 1330 199907456 94/00586 07 L 0<br>1340 199907457 94/00587 62 L 0<br>1410 199909263 94/00669 02 L 0<br>1420 199909263 94/00669  |             |       |        | )     |        |       |       |       |       |
| 1340 199907457 94/00587 6.2 L 0 1410 199908263 94/00669 0.2 L 0 1420 94/00660 0.2 L 0  | ٥           | 0.043 |        | 0 7   | 0.31   | 0 7   | 111.1 | 0.02  | 0     |
| 1410 199909263 94/00659 0.2 L 0 1420 94/00660 0.2 L 0 1420 0.42%   | ٦           | 02    | 0 7    | L 0   | 0.61   | 0 7   | 13    | 0.035 | 10    |
| 1420 94/00660 1426 1000000e 04/0060  | 0 7         | 0     | 0 7    | 0 1   | 0.24   | 0 1   | 0     | 0.015 | -     |
| 1476 10000006 0400000  |             |       |        |       |        | )     |       |       |       |
| 1425 (Seeduades) SANOUGES1 0.1 L 0   | 0.1 L 0 L   | 0     | 0      | 0 7   | 0.24   | 0 1   | 9.5   | 0.013 |       |
| 199909266 94/00662 2.7 L   | J           | 0.102 | 0 7    |       | 0.36   | 0 1   | 10.6  | 0 023 | 0     |

L = below limit of quantification. Q = not a quality assured parameter. T = trace.

Appendix 5b (cont.): 1999 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no defectible value at the limit of quantification (see test methods at end of table).

| SC-WOTS 990771 1522 158005099  | Station # | Date                             | Time from ADT                | - P                                 | Field #                                       | E. coli<br>MPN/100mi | 5 × 5           | TSS<br>mg/l as<br>residue |   | mg/l as | NO2<br>No2<br>N |      | NO3<br>NO3<br>NO3 | TKN<br>Mg/l as | mg/ as | HARD<br>CaCO3 |       | 14 M  | As As    |
|--|-----------|----------------------------------|------------------------------|-------------------------------------|---|----------------------|-----------------|---------------------------|---|---------|-----------------|------|-------------------|----------------|--------|---------------|-------|-------|----------|
| 1989   1989   1989   1989   1999    | SC-MODS1  | 99/07/11                         | 1905                         | 199905988                           | 94/00515                                      | 10                   | 0.5             | 7                         |   | 0.013   | 7               | 0    |                   | 0.34           | -      |               | 60.00 | 0.108 | 7        |
| Secondary   Seco |           | 99/07/11                         | 1918                         | 199905990                           | 94/00518                                      | No test              | 0.7             |                           |   | 0.014   |                 | 00   |                   | <br>040        |        |               | 0, 60 | 0.108 | 77       |
| Second  | SC-WD1    | 99/06/23                         | 0830                         | 199904903                           | 94/00437                                      | 410                  | 6.0             | 7                         |   | 0       | د.              | 0    | 9                 | 0.37           | _1     |               | 9.6   | 0.042 | 7        |
| 9907718         1412         199006683         9400256         <10         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1<  |           | 99/06/23                         | 0840                         | 199904905                           | 94/00439                                      |                      |                 | 77                        | ٦ | 0.015   |                 | 00   |                   | 0.34           |        |               | 0.0   | 0.043 | 7 7      |
| Manual Part   1417   198906866   94000627   1128   198906866   9400062   9400062    |           | 99/07/18                         | 1410                         | 199906583                           | 94/00555                                      | <10                  | 0.7             | L 0                       |   | 0       | _               | 0    | 9                 | 0.29           | -      |               | 0.7   | 0.024 | _        |
| 900K272         1125         198908896         9400623         <10         1         0         1 </td <td></td> <td>99/07/18<br/>99/07/18</td> <td>1417</td> <td>199906585</td> <td>94/00557</td> <td></td> <td>0.7</td> <td></td> <td></td> <td>00</td> <td></td> <td>00</td> <td>00</td> <td>0.30</td> <td></td> <td></td> <td>0.7</td> <td>0.027</td> <td></td>   |           | 99/07/18<br>99/07/18             | 1417                         | 199906585                           | 94/00557                                      |                      | 0.7             |                           |   | 00      |                 | 00   | 00                | 0.30           |        |               | 0.7   | 0.027 |          |
| 9900872 1135 199908862 94/00626  |           | 99/06/22                         | 1125                         | 199908880                           | 94/00623                                      | <10                  | 0.5             |                           | _ | 0       | ٠               | 0    | 7                 | 0              | _3     |               | 0.4   | 0 016 | 7        |
| September 2   1772   199904899   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00452   94/00454   94/00452   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00454   94/00452   94/00454   94/00452   94/00454   94/00452   94/00454   94/00454   94/00455   94/00454   94/00455   94/00454   94/00455   94/00454   94/00455   94/00454   94/00455   94/00454   94/00455   94/00454   94/00455   94/00454  |           | 99/08/72<br>99/08/72<br>99/08/72 | 1128<br>1130<br>1135         | 199908862                           | 94/00624<br>94/00625<br>94/00626              |                      | 0.5             |                           | _ | 0.012   |                 | 00   |                   | 0.24           | -1 -1  |               | 0.3   | 0.015 | -1 -1    |
| 98/06/23 07/26 199904901 94/00435 099 L 0 L 0 L 0 L 0 L 0 L 0 L 0 D D D D D D  | SC-WD2    | 99/06/23                         | 0720                         | 199904899                           | 94/00433                                      | <10                  | 0.8             | 7                         | _ | 0       | _               | 0    | -                 | 0.35           | -      |               | 0.1   | 0.043 | _        |
| 99/07/18         1306         199906571         94/00524         <10         0.7         1         0         1         0         0         1         0 <th< td=""><td></td><td>98/06/23<br/>98/06/23<br/>99/06/23</td><td>0730</td><td>199904901</td><td>94/00435<br/>94/00435</td><td></td><td>60</td><td>77</td><td></td><td>00</td><td></td><td>00</td><td>1 1</td><td>0.36</td><td></td><td></td><td>80.00</td><td>0.041</td><td>-1 -1</td></th<>  |           | 98/06/23<br>98/06/23<br>99/06/23 | 0730                         | 199904901                           | 94/00435<br>94/00435                          |                      | 60              | 77                        |   | 00      |                 | 00   | 1 1               | 0.36           |        |               | 80.00 | 0.041 | -1 -1    |
| 99007/18 1305 199906573 94/00526 94/00626 64 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0   |           | 99/07/18                         | 1300                         | 199906571                           | 94/00523                                      | <10                  | 0.7             |                           |   | 0       | _               | 0    | 1                 | 0.28           | ul.    |               | 1.6   | 0.028 | 7        |
| 99/08/22         1210         198908878         94/00621         <10         0.8         L         0         L <th< td=""><td></td><td>99/07/18<br/>99/07/18</td><td>1305</td><td>199906573<br/>199906574</td><td>94/00525<br/>94/00526</td><td></td><td>9.0</td><td></td><td>-</td><td>0.015</td><td></td><td>0.0</td><td></td><td>0.3</td><td></td><td></td><td>0.3</td><td>0.029</td><td>-1 -1</td></th<>   |           | 99/07/18<br>99/07/18             | 1305                         | 199906573<br>199906574              | 94/00525<br>94/00526                          |                      | 9.0             |                           | - | 0.015   |                 | 0.0  |                   | 0.3            |        |               | 0.3   | 0.029 | -1 -1    |
| 9908/29 1045 199809305 94/00686 <10 0.1 L 0 L 0 L 0 L 0 L 0 L 0 L 0 E 0 E 0 E 0  |           | 99/08/22<br>99/08/22             | 1210<br>1215<br>1220         | 199908877<br>199908878<br>199908879 | 94/00619<br>94/00621<br>94/00622              | <10                  | 0 0 0           |                           |   | 000     |                 | 000  |                   | 0.20           |        |               |       | 0.015 |          |
| 99/07/19 1427 199906669 94/00639 <10 02 L 0 L 0 L 0 L 0 L 0 L 0 L 0 T 79 99/07/19 1432 199906671 94/005401 03 L 0 L 0 L 0 L 0 L 0 L 0 L 0 T 77 99/07/19 1440 199908309 94/00671 <10 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 R 8 99/08/29 1346 199908310 94/00671 <10 0 L 0 L 0 L 0 L 0 L 0 R 0 R 82 99/08/29 1356 199908311 94/00673 01 L 0 L 0 L 0 L 0 L 0 R 0 R 83   | SC-SIXTH1 | 99/08/29<br>99/08/29<br>99/08/29 | 1045<br>1055<br>1050<br>1058 | 199908307<br>199908307              | 94/00686<br>94/00688<br>94/00688              | 010                  | 0.1             |                           | ٠ | 0 00    |                 | 0 00 |                   | 0.21           |        |               |       | 0.022 |          |
| 1346 199906309 94/00671 <10 0 L 0 L 0 L 0 L 0 L 0 B 2<br>1355 199906311 94/00673 <10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | SC-BLTN1  | 99/07/19<br>99/07/19<br>99/07/19 | 1427<br>1437<br>1440         | 199906671<br>199906671              | 94/00539<br>94/00540<br>94/005401<br>94/00542 | <10                  | 0 0 0 0 0 3 3 3 |                           |   | 0 00    |                 | 0 00 |                   | 0.23           |        |               |       | 0.015 |          |
|  |           | 95/80/86<br>95/80/86             | 1348<br>1356<br>1358         | 199908309<br>199908310<br>199908311 | 94/00671<br>94/00673<br>94/00674              | 410                  | 000             |                           |   | 0 0 0 0 |                 | 000  |                   | 0.20           |        |               | 8.2   | 0.01  | -1 -1 -1 |

L = below limit of quantification. Q = not a quality assured parameter T = trace.

Appendix 5b (cont.), 1999 St. Croix Lakes Study Field and Laboratory Data.
Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of tab

| SC-FIFTH1 99/06/28 99/06/28 99/06/28 99/06/28 99/06/28 99/06/28 99/06/29 99/06/29 99/06/29 99/06/22 99/07/28 99 | 1825<br>1815<br>1815<br>1830<br>1220<br>1225 |   |          | 20  | Ö    | 8      | Se you | Fe Fe | mg/l as | mg/l as | se lign | 80  | oyl as ugil as |     |
|--|--|---|----------|-----|------|--------|--------|-------|---------|---------|---------|-----|----------------|-----|
| 99006/28 99006/28 99006/28 99006/28 99006/29 99006/22 99006/22 99006/22 99006/22 99006/22 99006/22 99006/22 99006/22   | 1825<br>1815<br>1830<br>1220<br>1225         | 199905177                               | 94/00489 | L 0 | -    | 0      | L 0    | 0     | 03      | 0 00067 |         | ٦ 0 | 0 7 0 7        | 7   |
| 99,06628<br>99,07/19<br>99,06628<br>99,08/29<br>99,06/22<br>99,06/22<br>99,06/22<br>99,06/22<br>99,06/22<br>99,06/22<br>99,06/22<br>99,06/22<br>99,06/22<br>99,06/22<br>99,06/22<br>99,06/22<br>99,06/22   | 1220<br>1225<br>1225                         | 199905178                               | 94/00490 | 0   |      | 0      | 0.0006 |       | 0.29    | 0.0063  | -       | 0   | 0 7 0 7        | 7   |
| 99407/119 99407/119 99407/119 99408/29 99408/29 99408/29 99408/29 99408/29 99408/26 99408/26 99408/26 99408/26 99408/26 99408/26 99408/26 99408/26 99407/28 99406/22 99406/22  | 1220   | 199905180                               | 94/00492 | 10  | _    | 0      | 0.0006 | 0     | 0.29    | 0.018   |         | 0   | _              | _   |
| 98/07/19 98/07/19 98/07/19 98/07/19 98/07/19 98/08/29 98/08/29 98/08/29 98/08/26 98/08/26 98/08/26 98/08/26 98/08/26 98/07/28 98/07/28 98/06/22 98/06/22   | 225  | 199906665                               | 94/00535 | 0 7 | ٠    | 0      | L 0    | 0     | 0.37    | 0.006   |         | 0   | 0 7 0          | -d  |
| 998/07/19<br>998/07/19<br>998/08/29<br>998/08/29<br>998/08/29<br>998/08/26<br>998/08/26<br>998/08/26<br>998/07/28<br>998/07/28<br>998/06/22<br>998/06/22<br>998/06/22<br>998/07/28   | 1225   |   | 94/00536 |     |      |        |        |       | ***     | 10000   | -       | C   | -              | -   |
| 99/07/19 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22  | 1000   | 199906667                               | 94/00537 | 0   | ٠.   | 00     | 90000  | 00    | 0.34    | 0.0067  |         | 0 0 |                |     |
| 99/08/29<br>99/08/29<br>99/08/29<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22   | 1230   | 199906668                               | 94/00538 | 0 7 | 1    | 0      | 0      |       | 2       | 700.0   | ٠       | 0   | J              | J   |
| 99/04/29 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22  | 1200   | 199909301                               | 94/00682 | L 0 |      | 0      | 0 7    | 0     | 0.4     | 0 0063  | ٦       | 0   | 0 7 0          | _   |
| 99/08/29 99/08/29 99/08/29 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22 99/06/22  | 1208   |   | 94/00683 |     |      | *      |        | 0     | 0.00    | 0.00077 | 40      | 0   | *              | *   |
| 99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/07/28<br>99/07/28<br>99/07/28<br>99/07/28<br>99/07/28<br>99/07/28   | 1205   | 199909303                               | 94/00685 | L L | 00   | 90000  | 1      | 0.8   | 0.0     | 0.316   | - 1     | 0   | 0 7 0          |     |
| 99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/08/26<br>99/08/26<br>99/07/28<br>99/07/28<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22   |  |   |          |     |      |        |        |       |         |         |         | 0   | -              |     |
| 99/06/22<br>99/06/22<br>99/06/22<br>99/08/26<br>99/07/28<br>99/07/28<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22   | 1320   | 199904935                               | 94/00474 | 0 7 | _    | 0      | 0000   | 90.0  | 0.00    | 0.014   |         | 0   | ,              | ,   |
| 98/06/22<br>98/06/26<br>99/06/26<br>99/07/28<br>99/07/28<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22   | 1330   | 100004037                               | 94/00476 | 0 7 |      | 0      | 0.0005 | 0.11  | 0.58    | 0.026   | 1       | 0   | _              | _   |
| 99,008/26<br>99,008/26<br>99,008/26<br>99,008/26<br>99,007/28<br>99,006/22<br>99,006/22<br>99,006/22<br>99,006/22  | 1350   | 199904938                               | 94/00477 | 0   | ف ا  | 0      | 0.0005 |       | 0.61    | 0.037   | 7       | -   | 0 7            |     |
| 99/06/26<br>99/06/26<br>99/07/28<br>99/07/28<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22   | 1320   | 199909259                               | 94/00655 | 0 7 |      | 0      | 0 7    | 900   | 9.0     | 0 013   | 0 7     |     | 0 7            | 0 7 |
| 99/06/26<br>99/07/28<br>99/07/28<br>99/07/28<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22   | 1330   |   | 94/00656 |     |      |        |        |       | 0.63    | 0 0000  | 0       |     |                |     |
| 99/08/26<br>94/07/28<br>94/07/28<br>94/05/22<br>99/06/22<br>99/06/22<br>99/06/22   | 1335   | 199909261                               | 94/00657 | 0   | . ا  | 0 0    | 90     |       | 0.00    | 0.000   | 3 -     |     | 3 -            |     |
| 94/07/28<br>94/07/28<br>94/05/22<br>94/06/22<br>94/06/22<br>94/06/22<br>94/06/22   | 1340   | 199909262                               | 94/00658 | 0 7 | _    | 0      | 3      | 0.02  | 8       | 200     | 2       |     |                |     |
| 9907/28<br>9907/28<br>9906/22<br>9906/22<br>9906/22<br>9906/22   | 1245   | 199907458                               | 94/00580 | 0 7 | ١    | 0      | ٦ 0    | 20.0  | 0.55    | 0.012   | 0 7     |     | 0 7            | 0 7 |
| 99/07/28<br>99/06/22<br>99/06/22<br>99/06/22<br>99/06/22<br>99/07/28   | 1250   | 00710000                                | 94/00581 |     | -    | C      |        |       | 0.56    | 0 015   | 0 7     |     |                |     |
| 99/06/22<br>99/06/22<br>99/06/22<br>99/07/28<br>99/07/28   | 1300   | 199907461                               | 94/00583 | 00  | ب د  | 00     | 1 -    | 0.13  | 0.61    | 0.03    | L 0     |     | 0 7            |     |
| 98/06/22<br>98/06/22<br>98/06/22<br>98/07/28   | 3626   | 0100001                                 | OAIDDASA | -   | 0    | 90000  | 0 0000 | 0 12  | 0.62    | 0 035   | L 0     |     | 0 7            |     |
|  | 1630   | 0.00000                                 | 94/00455 | 1   |      |        |        |       |         |         |         |     |                |     |
|  | 1640   | 199904920                               | 94/00456 |     | 0    | 900000 | 0000   | 0.16  | 0.63    | 0 008   | 0 7     |     | 0 7            |     |
|  | 1645   | 199904921                               | 94/00457 | 0 7 | 0    | 0.001  | 0 0000 |       | 0.71    | 0334    | 0 7     |     | -1             |     |
|  | 1320   | 199907454                               | 94/00584 | 0 7 | -1   | 0      | 0      | 0.08  | 95:0    | 0.026   | 0 7     |     | L 0            | 0 7 |
|  | 1325   |   | 94/00585 |     |      |        |        |       | 080     | 0000    | 0       |     |                |     |
| 99/07/28   | 1330   | 199907456                               | 94/00586 | 0 0 | 7    | 0 0000 | 7 -    | 1 10  | 0.75    | 2.87    | 00      |     | 1 -1           |     |
|  | 1340   | 19880/45/                               | 24/0038/ |     | 0    | 200    | 3      |       |         |         |         |     |                |     |
|  | 1410   | 199909263                               | 94/00659 | 0 7 | _1   | 0      | 0 7    | 0     | 0.52    | 0 016   | L 0     |     | 0 7            | 0 7 |
|  | 1420   | *************************************** | 94/00660 |     |      | C      |        |       | 6P U    | 0.018   | 0 7     |     | 0 7            | 0 7 |
| 99/08/26   | 1425   | 199909265                               | 94/00661 | 3 - | 7 00 | 0 0000 |        | 0.43  | 9.0     | 0 327   | 0 1     |     | 10             | 0 7 |

L = below limit of quantification Q = not a quality assured parameter T = trace

Appendix 5b (cont.), 1999 St. Croix Lakes Study Fleid and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| 8900771   1955   195005889   9400547   1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | Station # | Date     | from ADT | Lab *                                   | Field #  | \$ PO | 1   | # 5 Č  | 2 20  | 1    | mg/l as | Z B Z | mg/l as | E .   | mg/ as | 8 28 |      | Se Non Se |
|--|-----------|----------|----------|---|----------|-------|-----|--------|-------|------|---------|-------|---------|-------|--------|------|------|-----------|
| 8907711 1910 198900999 9400059 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   | SC-MODS1  | 99/07/11 | 1925     | 199905988                               | 94/00515 | 1     |     |        | _     | 0    | 0.11    | 0.41  | 0.014   |       | 0      | -    | 0    | _         |
| 80000223 00405 94000437 L 0 0 00000 0 0011 0 17 0 18 0 18 0 18 0   |           | 99/07/11 | 1918     | 199905990                               | 94/00518 |       |     |        | 0 0   | 2000 | 0.11    | 0.42  | 0.015   |       |        |      | 00   | د د       |
| 99000778 1410 19900899 9400045   | 10        | 99/06/23 | 0830     | 199904903                               | 94/00437 | 7     | -   | 0 0000 | 0.0   | 9000 | 0.13    | 0.57  | 0.027   | 7     | 0      | -    | 0    | _         |
| Septimole   1412   1989006863   940006863   940006864   940006869   94000689   940006   |           | 99/06/23 | 0835     |   | 94/00438 |       |     |        |       |      |         |       |         |       |        |      |      |           |
| 98007719 1410 198900686 9400269  |           | 99/06/23 | 0840     | 199904905                               | 94/00439 |       | 0.0 | 90000  | 0.0   | 2016 | 0.14    | 0.59  | 0.046   | -11   | 00     | -    | 0.7  | ب ب       |
| 9907716 1417 199006596 9400559 L 0 00000 00005 019 067 0016 L 0 L 0 00000 9907716 1417 199006596 94000559 L 0 00000 00005 019 062 0041 L 0 L 0 L 0 00000 9907716 1419 199006599 9400055 L 0 0 00000 000005 L 0 0 0000 0 041 0 L 0 L 0 0 0000 0 041 0 L 0 0 0000 0 041 0 L 0 0 L 0 0 041 0 L 0 L 0  |           | 99/07/18 | 1410     | 199906583                               | 94/00555 | 1     | -   | 0.0006 | 0.0   | 9000 | 0.13    | 0.68  | 0.017   | -     | 0      | ے    | 0    | ب         |
| 9900622   1125   19900696   9400623   L 0   00006   0   0   0   0   0   0   0  |           | 98/07/18 | 1412     | *************************************** | 94/00556 |       |     | 0.0000 |       | 9000 |         | 200   | 0.00    |       |        |      |      |           |
| Secondary   1125   199900880   94000624   L 0   0.00006   L 0   0.009   0.61   0.017   L 0   L 0   L 0   0.009   0.009   0.0005   L 0   0.009   0.014   0.015   L 0   0.015   L 0   0.009   0.014   0.015   L 0   0.015    |           | 99/07/18 | 1419     | 199906586                               | 94/00558 |       |     | 0 0000 | 0.0   | 900  | 0.13    | 0.62  | 0.041   |       | 00     | ب ب  | 00   | ب ب       |
| SANONEZ2   1136   1989008882   94/000254   L 0 0 00005   L 0 0 009   0.61   0.017   L 0   L 0   L 0   0.005   C 0   0.025   0.61   0.017   L 0   L 0   L 0   0.025   C 0   0.025   0.025   C 0   |           | 99/08/22 | 1125     | 199908880                               | 94/00623 | 7     | -   | 0.000  | 0.0   | 9000 | 0.08    | 0.61  | 0.017   | _     | 0      | -1   | 0    | _         |
| 9909273 0720 199904899 9400426 L 0 00006 L 0 0 09 061 016 L 0 L 0 L 0 8909273 0725 199904899 9400429 L 0 00006 D 00006 D 014 0 061 0 0005 L 0 L 0 L 0 D 00006 D 014 0 014 0 014 0 014 D 01 |           | 99/08/22 | 1130     | 199906882                               | 94/00625 |       |     | 0.0005 |       | 0    | 000     | 0.61  | 0.017   |       | 0      | _    | 0    | _         |
| 99006723 0725 199904901 94-00433 L 0 0 0006 0 0006 0 14 0 61 0 0032 L 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |           | 99/08/22 | 1135     | 199908883                               | 94/00626 |       |     | 90000  | -     | 0    | 0.08    | 0.61  | 0.016   |       | 0      | ۱ ـ  | 0    | _         |
| 99/05/23 07/20 199904901 94/00436 L 0 0.0005 0.0013 0.14 0.59 0.0029 L 0 1.8 99/05/23 07/20 199904902 94/00436 L 0 0.0005 0.0024 0.14 0.59 0.0029 L 0 7.7 99/05/23 07/20 199904902 94/00436 L 0 0.0005 L 0 0.13 0.66 0.02 L 0 1.0 0.0005 1.3 0.0029 1.3 0.0029 L 0 0.13 0.0029 L 0 0.13 0.0029 L 0 0.13 0.0029 L 0 0.13 0.0029 L 0 0.14 0.0029 1.3 0.0029 L 0 0.14 0.0029 1.3 0.0029 L 0 0.14 0.0029 L 0 0.0 | 25        | 99/06/23 | 0720     | 199904890                               | 94/00433 | L 0   | _   | 0 0000 | 00    | 900  | 0.14    | 0.61  | 0.032   | mil.  | 0      | _    | 0    | -         |
| 99/05/23 0740 1999/06/27 94/00/28 L 0 0,0005 L 0 013 074 0.59 0.002 L 0 777 99/06/23 0740 1999/06/27 94/00/28 L 0 0,0005 L 0 013 0.74 0.59 0.002 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |           | 55/00/23 | 67/0     | +000004                                 | 94/00434 |       |     | 90000  | 00    | 2013 | 4.0     | 0 60  | 0000    |       | 0      |      | 0    |           |
| 98/07/18 1308 199906574 94/00524 L 0 0,0006 L 0 0,13 0,7 0,02 L 0 L 0 L 0 98/07/18 1308 199906573 94/00524 L 0 0,0006 L 0 0,13 0,7 0,6 0 L 0 L 0 L 0 B9/07/18 1308 199906574 94/00525 L 0 0,0006 L 0 0,005 0,13 0,6 0,002 L 0 L 0 L 0 B9/07/18 1305 199906574 94/00525 L 0 0,0006 L 0 0,005 0,13 0,6 0,014 L 0 L 0 L 0 B9/08/22 1220 199906879 94/00622 L 0 0,0006 L 0 0,007 0,00 0,014 L 0 L 0 L 0 B9/08/22 1220 199909879 94/00622 L 0 0,0006 L 0 L 0 L 0 D D D D D D D D D D D D D D  |           | 99/06/23 | 0740     | 198904902                               | 94/00436 |       |     | 0.0005 | 0.0   | 024  | 0.14    | 0.59  | 0.028   |       | 00     | - 1- | 0.1- | یے د      |
| 98/07/18 1305 199906573 94/0525 L 0 00006 0 0005 0 13 0 66 0 002 L 0 L 0 C 0 C 0 C 0 C 0 C 0 C 0 C 0 C C C C   |           | 99/07/18 | 1300     | 139906571                               | 94/00523 |       |     | 9000   |       | 6    | 6       | 6     | 8       |       | 0      |      |      |           |
| 99/07/19 1310 139906574 94/00526 L 0 0,0006 0,0005 0,13 0,66 0,02 L 0 L 0 L 0 99/07/19 1427 199906679 94/00549 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L   |           | 980/18   | 1300     | ************                            | #2000/PG | å     |     | 0.000  | ağ.   | 9    | 5.0     | 5     | 20.0    | 4     | 0      |      | 0    | ٠         |
| 99/08/22 1216 1999/08/37 94/00619 L 0 00006 L 0 0.06 0.59 0.014 L 0 L 0 L 0 99/08/22 1220 1999/08/38 94/00621 L 0 00006 L 0 0.06 0.06 0.014 L 0 L 0 L 0 0.00 0.06 0.016 L 0 L 0 L 0 D D D D D D D D D D D D D D  |           | 99/07/18 | 1310     | 199906574                               | 94/00526 |       | -   | 0.0006 | 00    | 900  | 0.13    | 99.0  | 0 00    | _     | 0      | _    | 0    | _         |
| 9908/22 1215 199908978 94/00622 L 0 0,0005 L 0 0,005 0,00 0,016 L 0 L 0 L 0 99/08/22 1220 199908978 94/00622 L 0 0,0005 L 0 0,005 0,00 0,005 L 0 0,005 L 0 0 0,005 L 0 0 0,005 L 0 0 0,005 L 0 0,005 L 0 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L   |           | 99/08/22 | 1210     | 199908877                               | 94/00619 |       |     | 90000  | ك     | 0    | 90 0    | 0.59  | 0.014   |       | 0      |      | 0    |           |
| 9900473 1045 199908305 94/00686 L 0 L 0 L 0 L 0 L 0 0.38 L 0 L 0 L 0 L 0 P 0 9900473 1055 94/00687 94/00689 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L  |           | 99/06/22 | 1215     | 199908678                               | 94/00621 |       | 0.5 | 0 0000 | -J -J | 00   | 0.00    | 0.59  | 0.016   |       | 00     |      | 00   |           |
| 9900429 1050 199908307 9400686 L 0 L 0 L 0 L 0 L 0 0.38 L 0 L 0 L 0 L 0 P O D D D D D D D D D D D D D D D D D D  | SC-SIXTH1 | 99/08/29 | 1045     | 199909305                               | 94/00586 | 1     | -   | 0      | _     | 0    | 0       | 0.38  |         | -     | 0      | ب    | 0    | -4        |
| 9908/79 1658 199908308 94/00689 L 0 L 0 L 0 L 0 L 0 0.38 0.0089 L 0 L 0 L 0 S908/719 1427 199908689 94/00540 L 0 L 0 L 0 L 0 L 0 0.38 0.0077 L 0 L 0 S907/19 1437 199908671 94/00540 L 0 L 0 L 0 L 0 L 0 C C C C C C C C C   |           | 99/08/29 | 1050     | 199909307                               | 94/00588 |       |     |        | -1    |      |         | 0.38  | 0 1     | -     | 0      |      | 0    | -4        |
| 98/07/19 1427 199906609 94/00540 L 0 L 0 L 0 L 0 0.38 0.0077 L 0 L 0 L 0 98/07/19 1432 199906671 94/00540 L 0 L 0 L 0 L 0 L 0 D D D D D D D D D  |           | 99/08/29 | 1058     | 199909308                               | 94/00689 |       |     |        | -     |      |         | 0.38  | 0.0089  | _     | 0      |      | 0    | the fi    |
| 1432 199906671 94005401 L 0 L 0 L 0 L 0 0.37 0.0068 L 0 L 0 L 0 1440 199906672 94005401 L 0 L 0 L 0 L 0 L 0 0.39 0.012 L 0 L 0 L 0 1346 199908310 9400671 L 0 L 0 L 0 L 0 L 0 0.44 0.0072 L 0 L 0 L 0 1356 199908310 9400674 L 0 L 0 L 0 L 0 L 0 0.44 0.0083 L 0 L 0 L 0 1 0 1356 199908311 9400674 L 0 L 0 L 0 L 0 L 0 L 0 L 0 0.45 0.014 L 0 L 0 L 0 L 0 L 0 1 0 1 0 1 0 1 0 1 0   | N.        | 99/07/19 | 1427     | 199906669                               | 94/00639 | 7     | 7   | 0      | ل.    | 0    | 0       | 0.38  | 7.000   | -1    | 0      |      | 0    | _4        |
| 1440 199906672 94/00542 L 0 L 0 L 0 L 0 0.39 0.012 L 0 L 0 L 0 1.39 0.012 L 0 L 0 L 0 L 0 1.39 0.012 L 0 L 0 L 0 L 0 L 0 0.44 0.0083 L 0 L 0 L 0 L 0 L 0 0.44 0.0083 L 0 L 0 L 0 L 0 L 0 0.44 0.0083 L 0 L 0 L 0 L 0 L 0 0.45 0.014 L 0 L 0 L 0 L 0 L 0 L 0 L 0 0.45 0.014 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L   |           | 980779   | 1430     | 10000671                                | GAMOSAON |       |     |        | -     |      |         | 710   | D ODGR  | -     | C      |      | c    | 000       |
| 1346 199909309 94/00671 L 0 L 0 L 0 L 0 0.44 0.0072 L 0 L 0 1 0 1.45 199909310 94/00673 L 0 L 0 L 0 L 0 L 0 0.44 0.0083 L 0 L 0 1 0 1.45 199909311 94/00674 L 0 L 0 L 0 L 0 L 0 0.45 10.014 L 0 L 0 L 0 L 0 0.45 10.014 L 0 L 0 L 0 L 0 0.45 10.014 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L  |           | 98/07/19 | 1440     | 199906672                               | 94/00542 |       |     |        | 1 -1  |      |         | 0.39  | 0.012   | ف. ف  | 0      |      | 00   | <u>ا</u>  |
| 1356 199906310 94/00673 L 0 L 0 L 0 L 0 0.44 0.0083 L 0 L 0 1 0 1556 199909311 94/00674 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L 0 L  |           | 99/08/29 | 1348     | 199909309                               | 94/00671 |       |     |        | ٠.    |      |         | 0.44  | 0.0072  | _     | 0      |      | 0    |           |
|  |           | 99/08/29 | 1356     | 199909310                               | 94/00673 |       |     |        |       |      |         | 0.45  | 0.0083  | ات لت | 00     |      | 00   | ں ں       |

L = below limit of quantification. Q = not a quality assured parameter. T = trac

Appendix 5b (cont.), 1999 St. Croix Lakes Study Field and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| 98/06/28   1810   198905/17   94/00489   L   |   | Date     | from ADT | Lab *                                   | Field #      | mg/l | se l'az | Bottom<br>depth (m) | Air Temp<br>(C) | Weather        | Wind | Wind<br>speed (km/h) |
|--|---|----------|----------|---|--------------|------|---------|---------------------|-----------------|----------------|------|----------------------|
| 99/06/28         1875         199905/18         94/00/49         0.11         7.5         2.2         dirzale, cloud         S           99/06/28         1800         199905/18         94/00/28         0.03         7.5         2.2         dirzale, cloud         S           99/06/28         1800         199905/18         94/00/28         0.03         7.5         2.2         dirzale, cloud         S           99/07/18         1725         199905/18         94/00/28         0.007         10.8         2.2         dirzale, cloud         S           99/07/18         1725         199905/18         94/00/28         0.007         10.8         2.2         dirzale, cloud         S           99/07/18         1725         199906/29         94/00/28         0.007         10.8         2.2         dirzale, cloud         S           99/07/18         1720         199906/29         94/00/28         1         0.007         12.5         2         dirzale, cloud         S           99/08/27         170         199906/29         1         0.007         10.8         2         dirzale, cloud         S           99/08/27         170         199906/29         1         0.007         12.5  |   | 80,90,00 | 1810     | 199905177                               | 94/00489     | 7    | 0       | 7.5                 | 22              | drizzle, cloud | S    | 10-12                |
| 990/67/8 1210 1999/6665 94/00/53   | - | 99/06/28 | 1825     | 199905178                               | 94/00490     |      |         | 7.5                 | 22              | drizzle, cloud | so u | 10-12                |
| Septimizer   12.00   199906665   94,00536   L   0   10   8   23   0 owercast   NW  |   | 99/06/28 | 1815     | 199905179                               | 94/00491     |      | 0011    | 7.5                 | 2 2             | drizzle, cloud | n vn | 10-12                |
| 9907779 1226 19990666 9400535 L 0 0108 23 overcast NWV 9907719 1220 19990666 9400535 L 0 0108 23 overcast NWV 9907719 1220 19990669 9400539 0 00077 10.8 23 overcast NWV 990622 1200 19990669 9400539 L 0 0125 22 sunny N N 1990622 1200 19990669 1200 19990669 L 0 125 22 sunny Pinght N N 1990622 1200 19990690 1200 1200 125 22 sunny N N 1990622 1200 19990690 1200 1200 1200 1200 1200 1200 19990690 1200 1200 1200 1200 1200 1200 1200 12  |   | 93/90/85 | 1830     | no i chessi                             | 3400438      |      | 3       |                     | 1 8             |                | MAN  | 10-12                |
| 99(07)19 1720 199906667 34(00534 0.0087 10.8 23 overcast NW 99(07)19 1720 199906669 94(00534 0.0077 10.8 23 overcast NW 99(07)19 1720 199906699 1200 199906903 10.8 23 overcast NW 99(08/22 1206 19990903 194(0047) 10.8 23 overcast NW 99(08/22 1206 19990903 94(0068) 1.2 0.0077 10.8 23 overcast NW 99(08/22 1300 19990903 94(0047) 0.131 6.2 33 overcast NW 99(08/22 1300 19990903 94(0047) 0.015 6.2 33 overcast NW 99(08/22 1300 19990903 94(0047) 0.015 6.2 33 overcast NW 99(08/22 1300 19990903 94(0047) 0.015 6.2 33 overcast NW 99(07/28 1300 19990903 94(0047) 0.015 6.2 33 overcast NW 99(07/28 1200 19990903 94(0045) 1.2 0.015 6.2 33 overcast NW 99(07/28 1200 19990903 94(0045) 1.2 0.015 6.2 33 overcast NW 99(07/28 1200 199909046) 94(0068) 1.2 0.007 9.5 0.007 9.007 9.007 99(07/28 1200 19990746) 94(0068) 1.2 0.007 9.5 0.007 9 |   | 99/07/19 | 1218     | 199906665                               | 94/00535     | _    | 0       | 10.8                | 3 2             | Constrast      | WW   | 10-12                |
| 99(07)19 1225 1999006669 94(00054) 0.0063 1.00 12.5 22 summy N N 94(00629 1206 199900669) 94(00054) 0.0063 1.00 12.5 22 summy N N 94(00629 1206 199900900) 94(00064 120 120 120 120 199900900) 94(00064 120 120 120 120 120 120 120 120 120 120  |   | 99/07/19 | 1220     |   | 94/00536     | •    | 0000    | 10.8                | 3 8             | Over Cast      | NA   | 10-12                |
| 98/08/22 1220 199903201 94/00682 L 0 125 22 surmy N S 98/08/22 1206 199903204 94/00682 L 0 125 22 surmy N N S 98/08/22 1205 199904305 94/00684 L 0 125 22 surmy N N S 98/08/22 1204 199904305 94/00685 L 0 125 22 surmy N N S 98/08/22 1300 199904305 94/00476 0 131 6.2 33 surmy, bright  |   | 99/07/19 | 1225     | 199906667                               | 94/00537     | 0 0  | 0083    | 10.8                | 3 8             | Over cast      | MN   | 10-12                |
| 98/08/25 1206 1999/9304 94/00685 L 0 12.5 22 summy N S9/08/25 1206 1999/9304 94/00685 L 0 12.5 22 summy N S9/08/25 1305 1999/9304 94/00685 L 0 12.5 22 summy N S S9/08/25 1330 1999/9303 94/00685 L 0 12.5 22 summy N S S9/08/25 1330 1999/9309 94/00685 L 0 12.5 22 summy N S S9/08/25 1330 1999/9309 94/00685 L 0 13.5 1330 1999/9309 94/00685 L 0 13.5 13.5 1999/9309 94/00685 L 0 13.5 13.5 1999/938 94/00689 L 0 13.5 1999/938 94/00689 L 0 13.5 1999/938 94/00689 L 0 13.5 1999/938 94/00689 P 13.5 1999/938 94/00689 P 13.5 1999/938 94/00689 P 13.5 1999/938 P 13.5 19 |   | 99/07/19 | 1230     | 199906668                               | 94/00538     | 0    | 18      | 0.01                | 2               |                |      |                      |
| 98/08/29         126         99909303         94/00686         L         0         12.5         2.2         summy         N           98/08/29         1206         199909304         94/00686         L         0         12.5         2.2         summy, bright         "           98/08/22         1320         199909304         94/00865         L         0         0.44         6.2         3.3         summy, bright         "           98/08/22         1320         199904938         94/00477         0.0131         6.2         3.3         summy, bright         "           98/08/22         1350         199904938         94/00477         0.0131         6.2         3.3         summy, bright         "           98/08/22         1350         199904938         94/00477         0.015         6.2         3.3         summy, bright         "           98/08/26         1350         199904938         94/00466         L         0         5.9         "         summy, bright         "           98/07/28         1246         19990492         1         0         5.9         "         summy, bright         "           98/07/28         1240         19990492         1  |   | Constant | 1300     | 10000001                                | 94/00682     | ad   | 0       | 12.5                | 22              | Summy          | 2    | 15-20                |
| Septiments   1256   199904930   94/00684   L   D   12.5   22   summy   N   |   | SAUGUS   | 1208     | -                                       | 94/00683     |      |         | 12.5                | 22              | sunus          | 2    | 15-20                |
| 95/06/22 1220 19990435 94/00475 0.131 6.2 33 surmy, bright 39/06/22 1320 19990435 94/00476 0.131 6.2 33 surmy, bright 39/06/22 1340 199904337 94/00476 0.131 6.2 33 surmy, bright 39/06/22 1350 199904338 94/00477 0.015 6.2 33 surmy, bright 39/06/22 1350 199904328 94/00477 0.015 6.2 33 surmy, bright 39/06/22 1350 199904328 94/00665 L 0 5.9 3 surmy, bright 39/06/22 1340 199907261 94/00665 L 0 5.9 3 surmy, bright 39/06/22 1340 199907459 94/00665 L 0 5.9 3 surmy 55W 59/07/28 1250 199904319 94/00663 L 0 5.9 3 surmy, bright 55W 59/07/28 1250 199904321 94/00663 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |   | 67/00/66 | 1206     | 1000001                                 | 94/00684     | 1    | 0       | 12.5                | 2               | sunny          | Z    | 15-20                |
| 96/06/22         1320         199904935         94/00474         0.044         6.2         33         summy, bright            96/06/22         1330         199904937         94/00477         0.131         6.2         33         summy, bright            96/06/22         1340         199904937         94/00477         0.015         6.2         33         summy, bright            99/06/22         1350         199904939         94/00665         L         0         5.9          summy, bright            99/06/26         1330         199907459         94/00666         L         0         5.9          summy         SW           99/07/28         1340         199907459         94/00669         L         0         5.9          summy         SW           99/07/28         1250         199907469         94/00669         L         0         5.9          summy         SW           99/07/28         1250         199907469         94/00669         L         0         5.9          summy         SW           99/07/28         1250         199907461         94/00662   |   | 99/08/29 | 1214     | 199909304                               | 94/00685     | _    | 0       | 12.5                | 22              | sunny          | z    | 15-20                |
| 99/06/22 1320 199904937 94/00477 0.131 6.2 33 sunny, bright 99/06/22 1320 199904938 94/00477 0.015 6.2 33 sunny, bright 99/06/22 1320 199904938 94/00477 0.015 6.2 33 sunny, bright 99/06/22 1320 199904938 94/006/25 L 0 5.9 sunny, bright 99/06/22 1320 199904938 94/006/25 L 0 5.9 sunny, bright 99/06/22 1245 199904926 94/006/26 L 0 5.9 sunny, bright SW 99/07/28 1320 199907469 94/006/20 L 0 0083 10 29 sunny, bright SW 99/06/22 1615 19990497 94/006/25 L 0 0083 10 29 sunny, bright SW 99/06/22 1640 199907469 94/006/25 D 0.007/28 1320 199907467 94/006/25 D 0.0034 10 29 sunny, bright SW 99/07/28 1320 199907457 94/006/25 D 0.0034 10 29 sunny, bright SW 99/07/28 1320 199907457 94/006/25 D 0.0034 10 29 sunny, bright SW 99/07/28 1320 199907457 94/006/25 D 0.0034 10 29 sunny, bright W 99/07/28 1320 199907457 94/006/25 D 0.0035 D                         |   |          |          | 300000000                               | 04100474     |      | 0.044   | 63                  | 33              | sunny. bright  | 1    | 0                    |
| 99006/22 1330 199904939 94/00477 0.0131 6.2 33 surmy, bright 99006/22 1340 199904939 94/00477 0.015 6.2 33 surmy, bright 99006/22 1350 199904939 94/00665 L 0 5.9 . surmy SW SW S9008/26 1330 94/00666 L 0 5.9 . surmy SW SW S9008/26 1340 199907469 94/00669 L 0 5.9 . surmy SW SW S9008/26 1340 199907469 94/00669 L 0 5.9 . surmy SW SW S9007/28 1255 199907469 94/00669 L 0 5.9 . surmy SW SW S9007/28 1255 199907461 94/00663 L 0 0.034 10 29 surmy, bright SW S9008/22 1645 199904929 94/00663 0 0.034 10 29 surmy, bright SW S9008/22 1645 199907464 94/00669 L 0 0.03 10 29 surmy, bright SW S9008/22 1645 199907466 94/00669 L 0 0.034 10 29 surmy, bright SW S9008/22 1645 199907466 94/00669 L 0 0.034 10 29 surmy, bright W S9008/22 1645 199907466 94/00669 L 0 0.034 10 29 surmy, bright W S9008/26 1425 199907466 94/00669 L 0 0.035 10 20 surmy, bright W S9008/26 1425 199907466 94/00669 L 0 0.034 10 20 surmy, bright W S9008/26 1425 199907466 94/00669 L 0 0.034 10 20 surmy, bright W S9008/26 1425 199907265 94/00669 L 0 0.034 10 20 surmy, bright W S9008/26 1425 199907265 94/00669 L 0 0.034 10 20 surmy, bright W S9008/26 1425 199907265 94/00669 L 0 0.034 10 20 surmy, bright W S9008/26 1425 199907265 94/00669 L 0 0.034 10 20 surmy, bright W S9008/26 1425 199907265 94/00669 L 0 0.034 10 20 surmy, bright W S9008/26 1425 199907265 94/00669 L 0 0.035 10 20 surmy, bright W S9008/26 1425 199907265 94/00669 L 0 0.034 10 20 surmy, bright W S9008/26 1425 10 20 20 50 surmy, bright W S9008/26 1425 10 sur         |   | 99/08/22 | 1320     | 188804833                               | 24,004,4     |      |         | 0.0                 | 33              | sunny bright   | 1    | 0                    |
| 99008/22 1350 199904399 9400477 0.015 6.2 33 sunny, bright — 99008/22 1350 199904399 9400655 L 0 5.9 - sunny SW 99008/26 1330 199904399 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |   | 99/06/22 | 1330     | 70000000                                | 94/004/3     | ,    | 131     | 6.2                 | 33              | sunny, bright  | 1    | 0                    |
| 99/08/26 1320 19990256 94/00656 L 0 5.9 - summy SW 99/08/26 1320 19990262 94/00656 L 0 5.9 - summy SW 99/08/26 1330 19990262 94/00656 L 0 5.9 - summy SW 99/08/26 1340 19990262 94/00658 L 0 5.9 - summy SW 99/07/28 1245 199907469 94/00458 L 0 0 5.9 - summy SW 99/07/28 1250 199907461 94/00458 L 0 0 003 10 29 summy bright SW 99/06/22 1630 199907461 94/00456 0 0 034 10 29 summy bright SW 99/06/22 1640 199907461 94/00456 0 0 034 10 29 summy bright SW 99/07/28 1320 199907467 0 0 033 10 29 summy bright SW 99/07/28 1320 199907467 0 0 0035 10 29 summy bright W 99/07/28 1320 199907465 94/00666 0 0 0025 10 39 - summy bright W 99/07/28 1420 199907465 94/00666 0 0 0025 10 39 - summy bright W 99/07/28 1420 199907465 94/00666 0 0 0025 10 39 - summy bright W 99/08/26 1420 199907465 94/00666 0 0 0025 10 39 - summy bright W 99/08/26 1420 199907465 94/00666 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |   | 99/06/22 | 1340     | 199904937                               | 04/00470     |      | 0015    | 62                  | 8               | sunny, bright  | 1    | 0                    |
| 1320 199909259 9400656 L 0 5.9 - summy SW 1330 199909262 9400656 L 0 5.9 - summy SW 1340 199909262 9400658 L 0 5.9 - summy SW 1340 199907450 9400658 L 0 5.9 - summy SW 1255 199907450 9400681 L 0 5.9 - summy SW 1255 199907450 9400682 L 0 0.083 10 29 summy SW 1300 199904920 9400652 L 0 0.083 10 29 summy bright SW 1325 199907456 9400656 L 0 10 29 summy, bright SW 1325 199907456 9400659 L 0 10 29 summy, bright SW 1325 199907456 9400669 L 0 10 29 summy, bright SW 1410 199907456 9400669 L 0 10 29 summy, bright W 1410 19990756 9400669 L 0 10 29 summy, bright W 1420 19990765 9400660 L 0 10 29 summy, bright W 1420 19990765 9400660 L 0 10 29 summy, bright W 1420 19990765 9400660 L 0 10 29 summy, bright W 1420 19990765 9400660 L 0 10 29 summy, bright W 1420 19990765 9400660 L 0 10 29 summy, bright W 1420 19990765 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 29 summy, bright W 1420 19990766 9400660 L 0 10 20 summy, bright W 1420 19990766 9400660 L 0 10 20 summy bright W 1420 19990766 9400660 L 0 10 20 summy bright W 1420 19990766 9400660 L 0 10 20 summy bright W 1420 19990766 9400660 L 0 10 20 summy bright W 1420 19990766 9400660 L 0 10 20 summy bright W 1420 19990766 9400660 L 0 10 20 summy bright W 1440 19990766 9400660 L 0 10 20 summy bright W 1440 19990766 9400660 L 0 10 20 summy bright W 1440 19990766 9400660 L 0 10 20 summy bright W 1440 19990766 9400660 L 0 10 20 summy bright W 1440 19900760 P 1440 19900760 P 1440 19900760 P 1440 19900760 P 1440 |   | 77/90/95 | 1320     | 000000000000000000000000000000000000000 |              |      |         |                     |                 |                | CW   | 25                   |
| 99/06/26 1330 94/00656 15.9 - surmy SW 99/06/26 1340 1999/05/26 14/00658 L 0 5.9 - surmy SW 99/06/26 1340 1999/05/26 94/00658 L 0 5.9 - surmy SW 99/07/28 1245 1999/07/46 94/00658 L 0 5.9 - surmy SW 99/07/28 1300 1999/04/51 94/00653 0.007/8 5 - surmy Pright SW 99/07/28 1300 1999/04/51 94/00454 0.0083 10 29 surmy, bright SW 99/06/22 1630 94/00455 0.0034 10 29 surmy, bright SW 99/06/22 1645 1999/04/51 94/00457 0.0034 10 29 surmy, bright SW 99/07/28 1320 1999/04/57 94/00457 0.0034 10 29 surmy, bright SW 99/07/28 1330 1999/04/57 94/00687 0.0055 10 10 29 surmy, bright W 99/08/26 1410 1999/05/53 94/00667 L 0 99 - surmy, bright W 99/08/26 1420 1999/05/55 94/00667 L 0 99 - surmy, bright W 99/08/26 1420 1999/06/25 94/00667 L 0 99 - surmy, bright W 99/08/26 1420 1999/06/25 94/00667 L 0 99 - surmy, bright W 99/08/26 1420 1999/06/25 94/00667 L 0 99 - surmy, bright W 99/08/26 1420 1999/06/26 94/00667 L 0 99 - surmy, bright W 99/08/26 1420 1999/06/26 1 120 10 99 - surmy, bright W 99/08/26 1420 1999/06/26 1 120 99 - surmy, bright W 99/08/26 1420 1999/06/26 1 |   | 99/06/26 | 1320     | 199909259                               | 94/00655     |      | D       | on o                | 0               | SACTOR         | MS   | 0.5                  |
| 99/09/26 1335 199909262 94/00658 L 0 5.9 - sunny SW 99/09/26 1340 199909262 94/00658 L 0 5.9 - sunny SW 99/07/28 1245 199907469 94/00582 L 0 5.9 - sunny SW 99/07/28 1300 199907461 94/00652 L 0 0 5.9 - sunny bright SW 99/07/28 1300 199904919 94/00455 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |   | 99/08/26 | 1330     |   | 94/00656     |      |         | 30.00               | ٠               | Sunny          | NO.  | 250                  |
| 99/06/26 1340 199909262 94/00658 L 0 5.9 - surnry 5VV 99/06/26 1245 199907456 94/00580 L 0 5.9 - surnry 59/07/28 1255 199907456 94/00581 L 0 5.9 - surnry 59/07/28 1255 199907451 94/00582 L 0 0.0078 5 - surnry 59/07/28 1300 199907451 94/00454 0 0.0083 10 29 surnry, bright 5VV 99/06/22 1645 199904920 94/00455 0 0.034 10 29 surnry, bright 5VV 99/06/22 1645 199907454 94/00457 0 0.033 10 29 surnry, bright 5VV 99/07/28 1325 199907456 94/00585 0 0.0055 10 329 surnry, bright 5VV 99/07/28 1320 199907457 94/00586 0 0.0055 10 329 surnry, bright 5VV 99/07/28 1330 199907457 94/00585 0 0.0055 10 39 - surnry, bright 5VV 99/08/26 1410 199905263 94/00586 0 0.0055 10 39 - surnry, bright 5VV 99/08/26 1420 199907555 94/00561 L 0 99 - surnry, bright 5VV 99/08/26 1420 199905255 94/00561 L 0 99 - surnry, bright 5VV 99/08/26 1420 199905255 94/00661 L 0 99 - surnry, bright 5VV 99/08/26 1420 199905255 94/00661 L 0 99 - surnry, bright 5VV 99/08/26 1420 1420 1420 1420 1420 1420 1420 1420   |   | 99/08/26 | 1335     | 199909261                               | 94/00657     | a.d  | 0       | on<br>on            |                 | sunny          | 200  | 9 6                  |
| 99/07/28 1255 199907456 94/00581 L 0 5 sunnry bight 29/07/28 1255 199907460 94/00581 L 0.0078 5 sunnry bight 29/07/28 1255 199904919 94/00454 0.0083 10 29 sunnry bight 5W sunnry bight 7W sunnry bight        |   | 99/08/26 | 1340     | 199909262                               | 94/00658     | ud.  | 0       | 9.0                 | à               | Sunny          | Mo   | 3                    |
| 99/07/28 1255 1999/07460 94/00581 5 sunny, bright SW 99/07/28 1255 1999/07461 94/00582 L 0.0078 5 sunny, bright SW 99/07/28 1300 1999/0450 94/00455 0.0034 10 29 sunny, bright SW 99/05/22 1645 1999/04921 94/00455 0.0034 10 29 sunny, bright SW 99/05/22 1645 1999/04921 94/00457 0.0033 10 29 sunny, bright SW 99/05/22 1645 1999/04921 94/00457 0.0034 10 29 sunny, bright SW 99/07/28 1325 94/00586 L 0 10 10 29 sunny, bright SW 99/07/28 1325 94/00586 0.0055 10 29 sunny, bright W 99/07/28 1340 1999/07/457 94/00587 0.0055 10 29 sunny, bright W 99/08/26 1440 1999/07/56 1420 94/00687 0.0055 10 99 - sunny, bright W 99/08/26 1425 1999/05/5       |   |          | 4        | 9700000                                 | CANTOGRA     | -    | c       | set                 | 8               | Auuns          | 1    | 0                    |
| 99/07/28 1255 199907461 94/00562 L 0 0 5 surmy 99/07/28 1300 199907461 94/00454 0.0033 10 29 surmy, bright SW 99/07/28 1320 199904929 94/00457 0.0034 10 29 surmy, bright SW 99/06/22 1645 199904921 94/00457 0.0034 10 29 surmy, bright SW 99/07/28 1320 199907454 94/00565 0.0035 10 29 surmy, bright SW 99/07/28 1330 199907456 94/00565 0.0035 10 29 surmy, bright SW 99/07/28 1330 199907457 94/00565 0.0035 10 39 surmy bright W 99/08/26 1410 199905253 94/00667 L 0 99 surmy, bright W 99/08/26 1420 199905255 94/00661 L 0 99 surmy, bright W 99/08/26 1420 199905255 94/00661 L 0 99 surmy, bright W 99/08/26 1420 199905255 94/00661 L 0 99 surmy, bright W 99/08/26 1420 199905255 94/00661 L 0 99 surmy, bright W 99/08/26 1420 199905255 94/00661 L 0 99 surmy, bright W 99/08/26 1420 199905255 94/00661 L 0 0 99 surmy, bright W 99/08/26 1420 199905255 94/00661 L 0 0 99 surmy, bright W 99/08/26 1420 199906255 94/00661 L 0 0 99 surmy, bright W 99/08/26 1420 199906255 94/09/26 1420 199906259 0.000659 L 0 0 99 surmy, bright W 99/08/26 1420 199906259 0.00061 L 0 0 99 surmy, bright W 99/08/26 1420 199906259 0.000659 L 0 0 99 surmy, bright W 99/08/26 1420 199906259 0.000659 L 0 0 0 99 surmy, bright W 99/08/26 1420 199906259 0.000659 L 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0   |   | 99/07/28 | 1245     | 136307430                               | 94/005B1     | à    |         | w w                 | 1               | sunny          | 3    | 0                    |
| 99/07/28 1300 199907461 94/00563 0.0078 5 surmy, bright SW 99/07/28 1300 199907461 94/00563 0.0078 5 surmy, bright SW 99/06/22 1645 199904921 94/00465 0.034 10 29 surmy, bright SW 99/06/22 1645 199904921 94/00467 0.033 10 29 surmy, bright SW 99/07/28 1320 199907454 94/00585 0.0035 10 29 surmy, bright SW 99/07/28 1320 199907457 94/00585 0.0025 10 surmy, bright W 99/09/28 1420 199907457 94/00659 L 0 99 surmy, bright W 99/09/26 1420 199909265 94/00661 L 0 99 surmy, bright W 99/09/26 1420 199909265 94/00661 L 0 99 surmy, bright W 99/09/26 1420 199909265 94/00661 L 0 99 surmy, bright W 99/09/26 1420 199909265 94/00661 L 0 99 surmy, bright W 99/09/26 1420 199909265 94/00661 L 0 99 surmy, bright W  |   | 99/0//28 | 200      | 1000017460                              | 94/00582     | -    | 0       | N)                  | t               | surny          | 1    | 0                    |
| 99/06/22 1615 199904919 94/00454 0.083 10 29 sunny, bright SW 99/06/22 1640 199904920 94/00455 0.034 10 29 sunny, bright SW 99/06/22 1645 199904920 94/00457 0.033 10 29 sunny, bright SW 99/06/22 1645 199904921 94/00457 0.033 10 29 sunny, bright SW 99/07/28 1325 99/07/28 1330 199907456 94/00586 0.0055 10 sunny — sunny D9/06/20 1420 99/08/26 1420 99/06/26 1420 99/08/26 1425 199909/25 94/00661 1 0 9.9 — sunny bright W 99/08/26 1425 199909/25 94/00661 1 0 9.9 — sunny bright W 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 1420 99/08/26 99/08/26 1420 99/08/26 1420 99/08/26 99/08/2 |   | 99/07/28 | 1300     | 199907461                               | 94/00563     |      | 8200    | เก                  | 1               | Sunny          | t    | 0                    |
| 99/06/22 1615 1999/4919 94/00456 0.034 10 29 sunny, bright SW 99/06/22 1640 1999/4920 94/00456 0.034 10 29 sunny, bright SW 99/06/22 1645 1999/4920 94/00456 0.033 10 29 sunny, bright SW 99/07/28 1325 1999/7454 94/00585 0.0055 10 10 29 sunny, bright SW 99/07/28 1325 1999/7457 94/00585 0.0055 10 sunny   |   |          |          | 0,000                                   | Osmoska      |      | 0.083   | 10                  | 8               | sunny, bright  | SW   | 0-5                  |
| 1630 199904920 94/004657 0.033 10 29 surnry, bright SW 1320 199907454 94/00564 L 0 10 10 29 surnry, bright SW 1325 199907456 94/00566 L 0 10 10 surnry - surnry - surnry - surnry - surnry - 1340 199907457 94/00567 0.022 10 surnry - surnry | 2 | 99/06/22 | 1615     | 199904919                               | 3400456      |      | 3       | 0 0                 | 8               | sunny, bright  | SW   | 0-5                  |
| 1640 199904321 3400457 0.033 10 29 surmy, bright StW 1325 199907454 94,00056   |   | 99/06/22 | 1630     | 00000000                                | 34/00450     |      | 0 034   | 0,0                 | 8               | sunny, bright  | SW   | 0-5                  |
| 1320 199907454 9400584 L 0 10 sunny 1325 199907456 9400585 0.0055 10 sunny 1340 199907457 9400587 0.022 10 sunny 1410 19990253 9400689 L 0 99 sunny bright W 1425 19990256 9400661 L 0 99 sunny bright W 1425 199903265 9400661 L 0 99 sunny bright W  |   | 99/06/22 | 1645     | 199904921                               | 94/00457     |      | 0.033   | 10                  | 8               | sunny, bright  | SW   | 9                    |
| 1320 199907454 9400584 L 0 939 - surmy inglift W 1410 19990255 9400660 L 0 939 - surmy inglift W 1425 19990255 9400661 L 0 939 - surmy inglift W 1425 19990255 9400661 L 0 939 - surmy inglift W 1425 199903265 9400661 L 0 939 - surmy inglift W 1425 199903265 9400661 L 0 939 - surmy inglift W 1425 199903265 9400661 L 0 939 - surmy inglift W  |   |          |          |   | 0.4100000.04 |      | e       | ç                   |                 | AUUTS          | t    | 0                    |
| 1325 199907456 94,00365 10 sumny — sumny — sumny — sumny — sumny — 1410 199907457 94,00569 L 0 99 - sumny bright W 1420 199902565 94,00660 L 0 99 - sumny bright W 1420 199903265 94,00661 L 0 99 - sumny bright W 1426 199903265 94,00661 L 0 99 - sumny bright W   |   | 99/07/28 | 1320     | 199907454                               | SAUCOSE      | a de | 9       | 5 0                 |                 | Auuns          | 1    | 0                    |
| 1330 199007456 94,00096 0,0000 10 sumny — 1340 199907457 94,000697 0,0022 10 sumny, bright W 1410 199909263 94,00069 L 0 9.9 sumny, bright W 1420 94,00660 L 0 9.9 sumny, bright W 1420 199909265 94,00061 L 0 9.9 sumny, bright W 1425 199909265 94,00061 L 0 9.9 sumny, bright W   |   | 99/07/28 | 1325     | 0.00                                    | SANDOS       | 6    | MEE     | 5 5                 |                 | MUUN           | 1    | 0                    |
| 1340 199907457 94/00587 0.022 10 sumry, bright W 1410 199909263 94/00660 L 0 9.9 - sumry, bright W 1420 199909265 94/00660 L 0 9.9 - sumry, bright W 1425 199909265 94/00661 L 0 9.9 - sumry, bright W 1425 199909265 94/00661 L 0 9.9 - sumry, bright W   |   | 99/07/28 | 1330     | 199907456                               | 94/00369     | 9    | 0000    | 2 5                 |                 | ALL STATES     | 1    | 0                    |
| 1410 199909263 94/00659 L 0 9.9 sumy, bright W 1420 94/00660 9 9 sumy, bright W 1420 199909265 94/00661 L 0 9.9 sumy, bright W 1425 199909265 94/00661 L 0 9.9 sumy, bright W  |   | 99/07/28 | 1340     | 199907457                               | 94/00587     |      | 0.022   | 0                   |                 | Annua .        |      |                      |
| 1420 199909265 94/00660 1 0 9 9 - surmy bright W  |   | 2000000  | 1410     | 199906263                               | 94/00659     | -4   | 0       | 6.6                 | ,               | sunny, bright  | 3    | 0-5                  |
| 1425 199909265 94100661 L 0 9.9 - sunny bright W   |   | 230000   | 4420     |   | 94/00660     |      |         | 6.6                 |                 | sunmy, bright  | 3    | 0                    |
| W though works   |   | 92/90/65 | 3075     | 1000000565                              | 94/00661     | -    | 0       | 6.6                 | 1               | sunny, bright  | >    | 0                    |
| Cappana cappana  |   | 99/08/20 | C741     | 00000000                                | 000000       |      |         | 00                  |                 | sunny bright   | >    | 0.5                  |

L = below limit of quantification . Q  $\approx$  not a quality assured parameter. T = trace.

Appendix 5b (cont.), 1999 St. Croix Lakes Study Fleid and Laboratory Data. Values shown as zero (0) reflect no detectible value at the limit of quantification (see test methods at end of table).

| SC-WIDT   SECRET      | Station # | Date        | from ADT | Lab #  | Field #    | E     | mg/l as | Bottom<br>depth (m) | Air Temp<br>(C) | Weather       | Wind | speed (km/h) |
|--|-----------|-------------|----------|--|------------|-------|---------|---------------------|-----------------|---------------|------|--------------|
| Secondary   1922   Secondary   | AODS1     | 99/07/11    | 1905     | 199905988  | 94/00515   | -4    | 0       | 8.6                 | :               | overcast      | MW   | 10           |
| 9907/11         1910         199006923         0400591         0.0028         6.6         —         Newcast         NWV           99007/11         1916         199006923         04000591         0.000         5.8         —         Naty         —           9900672         0826         19900490         94000591         0.000         5.8         —         Naty         —           9900672         0846         19900490         94000592         0.000         5.8         —         Naty         —           9900778         1417         19900490         94000597         0.0016         5.8         31         Naty         —           9900778         1417         19900690         94000597         0.0016         5.8         31         Naty         —           9900778         1417         19900690         94000597         0.0016         5.8         31         Naty         —           99007718         1417         19900690         94000597         0.0016         5.8         30         Naty         NW           9900772         1128         19900490         94000597         1         0.0016         5.8         20         summy         NR      <   |           | 89/07/11    | 1922     |  | 94/00516   |       |         | 8.6                 | 1               | overcast      | N.   | 0 0          |
| 9907/11         1918         199004023         9400403         L         0         5.8          hasy            9900623         0835         19600403         9400403         L         0         5.8          hasy            9900623         0845         19600403         9400403         L         0         5.8          hasy            9900627         0845         19600400         9400404         L         0         5.8          hasy            9907718         1412         19600400         9400655         L         0         5.8         31         hasy / chody         NW           9907718         1417         19600400         9400655         L         0         5.8         31         hasy / chody         NW           9900472         1418         19600400         9400655         L         0         5.8         31         hasy / chody         NW           9900472         1418         19600400         9400656         L         0         4         17         sight fog         NW           9900477         1000         19600400         100052   |           | 99/07/11    | 1910     | 199905990  | 94/00517   |       | 0.039   | 9.0                 | 1               | Overcast      | 2    | 0            |
| 99(106/22)         08:00         199904902         94,000437         L         0         5.8          hazy            99(106/22)         0.865         198004902         94,000439         L         0.009         5.8          hazy            99(106/22)         0.845         198004902         94,000440         L         0.009         5.8          hazy            99(106/22)         1410         198904902         94,000560         L         0.009         5.8         31         hazy / cloudy         NW           99(106/22)         1410         19890490         94,000560         0.0016         5.8         31         hazy / cloudy         NW           99(106/22)         1125         19890490         94,000560         L         0.016         5.8         31         hazy / cloudy         NW           99(106/22)         1130         19890490         94,000560         L         0.016         5.8         31         hazy / cloudy         NW           99(106/22)         1130         19890490         94,000560         L         0.016         5.8         31         hazy / cloudy         NW           99(106/22)  |           | 99/07/11    | 1918     | 199905961  | 94/00518   |       | 0.02    | 9.0                 | ı               | CVBCCast      | M    | 10           |
| 990/07/2         1990/08/2         940/04/3         L         0.05         9.00         0.05         9.00         0.05         9.00         0.05         9.00         0.05  |           | 0000000     | 0000     | * COCOUNTED  | Transier C | -     | c       | a u                 |                 | 2             | 1    | C            |
| 990/06/22         00/25         1989/06/25         00/25   | VD1       | 27/00/22    | 0630     | 20010000   | 250046     | å     | 0       | 5 4                 |                 | -             |      | 0 0          |
| 99/06/22         08-45         198904905         94/00440         L         0.00         5.8          hazy            99/06/23         08-06/23         94/00/240         L         0.00         5.8          hazy /            99/07/18         1412         19890490         94/00/25         0.00         5.8         31         hazy /         0.00         NW           99/07/18         1412         19890680         94/00/25         0.00         5.8         31         hazy /         NW           99/07/18         1419         19890880         94/00/25         0.00         5.8         31         hazy /         NW           99/08/22         1126         19890880         94/00/25         0.00         5.8         30         hazy /         NW           99/08/22         1130         19890880         94/00/25         L         0.00         5.8         30         summy         NE           99/08/22         1130         19890480         94/00/25         L         0.00         5.8         30         summy         NE           99/08/22         1130         19890480         94/00/25         L         0.01 <td></td> <td>98/06/23</td> <td>0835</td> <td></td> <td>94/00438</td> <td></td> <td></td> <td>5.6</td> <td>1</td> <td>nazy</td> <td>1</td> <td>0 0</td>  |           | 98/06/23    | 0835     |  | 94/00438   |       |         | 5.6                 | 1               | nazy          | 1    | 0 0          |
| 99(07)71 1410 199906999 94(00565 L 0.0075 5.8 31 hazy / cloudy NW 99(07)71 1410 199906999 94(00565 L 0.0075 5.8 31 hazy / cloudy NW 99(07)71 1410 199906999 94(00565 L 0.0075 5.8 31 hazy / cloudy NW 99(07)71 1410 199906999 94(00565 L 0.0075 5.8 31 hazy / cloudy NW 99(09)72 1128 199909999 94(00565 L 0.0075 5.8 31 hazy / cloudy NW 99(09)72 1129 199909999 94(00565 L 0.0075 5.8 30 narry NE 99(09)72 1139 199909999 94(00565 L 0.0075 5.8 20 narry NE 99(09)72 1139 199909999 94(00565 L 0.0075 5.8 20 narry NE 99(09)72 1139 199909999 94(00565 L 0.0075 5.8 20 narry NE 99(09)72 1139 199909999 94(00565 L 0.0075 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  |           | 99/06/23    | 0840     | 199904905  | 94/00439   |       | 0.00    | 5.8                 | 2               | hazy          | 1    | 0            |
| 99/07/16 1410 199906583 94/00556 L 0 5.8 31 hazy / cloudy NW 99/07/16 1412 199906585 94/00556 0.016 5.8 31 hazy / cloudy NW 99/07/16 1412 199906585 94/00557 0.016 5.8 31 hazy / cloudy NW 99/07/16 1412 199906585 94/00522 0.0056 5.5 20 summy NE 99/06/22 1126 19990883 94/00525 L 0.0056 5.5 20 summy NE 99/06/22 1135 19990883 94/00525 L 0.0056 5.5 20 summy NE 99/06/22 1135 19990883 94/00525 L 0.005 5.5 20 summy NE 99/06/22 0.0056 5.5 20 summy NE 99/06/22 1135 19990883 94/00525 L 0.005 5.5 20 summy NE 99/06/22 0.005 5.5 20 summy NE 99/07/16 0.005 5.5 20 summ |           | 99/06/23    | 0845     | 199904906  | 94/00440   | -1    | 0       | S).                 | 1               | hazy          | 1    | 0            |
| 98/07/16         1412         1999006868         94/00556         0.0075         5.8         3.1         hazy / cloudy hWW           98/07/16         1412         1999006868         94/00556         0.0075         5.8         3.1         hazy / cloudy hWW           98/07/16         1417         1999006869         94/00556         0.0056         5.5         2.0         summy hE           98/07/27         1128         1999006862         94/00556         0.0056         5.5         2.0         summy hE           98/08/27         1128         1999008863         94/00566         0.0066         5.5         2.0         summy hE           98/08/27         1128         1999008863         94/00626         0.0076         5.5         2.0         summy hE           98/08/27         1130         1999040867         94/00626         0.017         4         17         slight tog hE           98/08/27         1130         199904087         94/00626         0.017         4         17         slight tog hE           98/08/27         1130         199904087         94/00626         0.017         4         17         slight tog hE           98/08/27         1130         199906877         94/00626 <td></td> <td>01/20000</td> <td>0077</td> <td>100000583</td> <td>GAINDERS</td> <td>-</td> <td>c</td> <td>8 8</td> <td>314</td> <td>hazy / cloudy</td> <td>MW</td> <td>5-10</td>  |           | 01/20000    | 0077     | 100000583  | GAINDERS   | -     | c       | 8 8                 | 314             | hazy / cloudy | MW   | 5-10         |
| 98/07/16         1472         199906585         94/00556         0,0075         5.8         3.1         hazy / cloudy hWV           98/07/16         1419         199906586         94/00556         0,008         5.5         2.0         summy         NE           98/07/16         1419         199906880         94/00552         0,008         5.5         2.0         summy         NE           98/08/22         1130         199908802         94/00552         0,009         5.5         2.0         summy         NE           98/08/22         1135         199908802         94/00524         0,009         5.5         2.0         summy         NE           98/08/22         1135         199908802         14,00052         1,0         4         17         sight tog         NE           98/08/22         1720         19990887         94/0052         1,0         4         17         sight tog         NE           98/08/22         1720         19990887         94/0052         1,0         4         17         sight tog         NE           98/08/22         1720         19990887         94/0052         1,0         4         17         sight tog         NE  |           | 36/0/10     | 0.77     | 20000000   | 0400056    | a     | •       | o u                 | 3 6             | hazy I cloudy | NW   | 5-10         |
| 99/08/22         1125         199/08/20         94/00/23         0.016         5.8         31         hazy / cloudy         NW           99/08/22         1126         199/08/20         94/00/23         0.006         5.5         20         summy         NE           99/08/22         1126         199/08/20         94/00/23         L         0.006         5.5         20         summy         NE           99/08/22         1126         199/08/20         94/00/23         L         0.006         5.5         20         summy         NE           99/08/22         1130         199/08/99         94/00/23         L         0.006         5.5         20         summy         NE           99/08/23         1130         199/08/99         94/00/23         L         0         4         17         sight tog         NE           99/08/23         0720         199/08/99         94/00/23         L         0         2         2         2         summy         NE           99/08/27/18         1300         199/08/99         94/00/23         L         0         2         2         2         2         summy         NE           99/08/27/18         1300  |           | 201/100     | 2141     | + ODOODESBE  | 94/00657   |       | 0.0075  | o e                 | 3.5             | hazy I cloudy | MA   | 5-10         |
| 99/08/22         1125         19990890         94/00623         0.0056         5.5         20         summy         NE           99/08/22         1126         199908802         94/00623         L         0.0056         5.5         20         summy         NE           99/08/22         1126         199908802         94/00623         L         0.0032         5.5         20         summy         NE           99/08/23         0720         199908803         94/00623         L         0         4         17         slight fog         NE           99/08/23         0720         199904801         94/00624         L         0         4         17         slight fog         NE           99/08/23         0720         199904802         94/00624         L         0         2         2         2         3ummy         NE           99/07/18         1300         199904802         1900624         L         0         2         2         2         3ummy         NE           99/07/18         1310         199908677         94/00624         L         0         2         2         2         3ummy         NE           99/07/18         1310  |           | 99/07/18    | 1419     | 199906586  | 94/0056    |       | 0.018   | 2 60                | 31              | hazy / cloudy | NW   | 5-10         |
| 99/08/22         1125         19990899         94/00623         0.0056         5.5         20         summy         NE           99/08/22         1128         199908992         94/00623         0.0092         5.5         20         summy         NE           99/08/22         1136         199908992         94/00626         0.0092         5.5         20         summy         NE           99/08/23         0725         199904999         94/00626         0.0092         5.5         20         summy         NE           99/08/23         0726         199904999         94/00626         0.017         4         17         sight fog         NE           99/08/23         0726         199904902         94/00626         0.017         4         17         sight fog         NE           99/08/21         170         199904905         94/00626         0.017         4         17         sight fog         NE           99/07/18         1306         199904905         94/00626         0.007         29         29         hazy, cloudy         NW           99/07/18         1306         199906879         94/00626         0.005         29         29         hazy, cloudy <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>  |           |             |          |  |            |       |         |                     |                 |               |      |              |
| 99/09/22         1128         199908882         94/00626         L         0.032         5.5         20         summy         NE           99/09/22         1130         199908882         94/00626         L         0.032         5.5         20         summy         NE           99/09/23         1135         199908893         94/00626         L         0.0         5.5         20         summy         NE           99/09/23         0725         199904893         94/00436         L         0         4         17         sight fog         NE           99/06/23         0726         199904901         94/00436         L         0         4         17         sight fog         NE           99/07/18         1306         199904902         94/00436         L         0         2         29         Parzy, cloudy         NW           99/07/18         1306         1999080674         94/00626         L         0         5         2         2         summy         NE           99/07/18         1306         199908877         94/00626         L         0         5         2         2         sight fog         NE           99/07/18         1310   |           | 99/06/22    | 1125     | 199906880  | 94/00623   |       | 99000   | 5.5                 | 92              | sunny         | NE   | 3-7          |
| 99/08/22         1130         19990882         94/00626         L         0.0092         5.5         20         summy         NE           99/08/22         1135         19990883         94/00626         L         0.005         5.5         20         summy         NE           99/08/23         0720         199908893         94/00433         L         0         4         17         slight tog         NE           99/08/23         0730         199904901         94/00436         L         0         4         17         slight tog         NE           99/08/23         0730         199904902         94/00436         L         0         4         17         slight tog         NE           99/07/18         1300         199904902         94/00436         L         0         4         17         slight tog         NE           99/07/18         1300         199904907         94/00526         L         0         29         29         hazy, cloudy         NW           99/07/19         1310         19990879         94/00526         L         0         5.8         20         high overcast         NK           99/08/27         120         194/0052  |           | 99/08/22    | 1128     |  | 94/00624   |       |         | 5.5                 | 8               | granny        | NE   | 3-7          |
| 99/06/22 (1735) 1999/04993 94/00433 L 0 55 20 surmry NE 99/06/23 (7720) 1999/04993 L 0 4 17 slight tog NE 99/06/23 (7720) 1999/04902 94/00436 L 0 0 1 4 17 slight tog NE 99/06/23 (7740) 1999/04902 94/00436 L 0 0 1 4 17 slight tog NE 99/06/23 (7740) 1999/04902 94/00436 L 0 0 1 4 17 slight tog NE 99/06/23 (7740) 1999/04902 94/00436 L 0 0 1 2 9 29 hazy, cloudy NW 99/07/18 (1306) 1999/06/24 94/005/24 L 0 0 5.8 29 hazy, cloudy NW 99/07/18 (1306) 1999/06/24 94/005/26 L 0 0 5.8 20 high overcast NE 99/06/22 (1202) 1999/08/29 94/005/29 L 0 0 5.8 20 high overcast NE 99/06/29 (1402) 1999/08/29 94/005/39 L 0 0 5.8 20 high overcast NW 99/07/19 (142) 1999/08/29 94/005/39 L 0 0 5.8 20 high overcast NW 99/07/19 (142) 1999/08/29 94/005/30 L 0 5.8 20 high overcast NW 99/07/19 (142) 1999/08/29 94/005/30 L 0 5.5 22 high overcast NW 99/07/19 (142) 1999/08/29 94/005/30 L 0 5.5 22 high overcast NW 99/07/19 (142) 1999/08/29 94/005/31 L 0 0 6.1 22 surmry NW 99/07/19 (142) 1999/08/29 94/005/31 L 0 0 6.2 22 high overcast NW 99/07/19 (142) 1999/08/29 94/005/31 L 0 0 6.2 22 high overcast NW 99/07/19 (142) 1999/08/31 94/005/31 L 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 94/005/31 L 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31 D 0 0 6 22 22 high overcast NW 99/07/19 (142) 1999/08/31  |           | 99/08/22    | 1130     | 199906882  | 94/00625   |       | 0.0092  | 5.5                 | 20              | sunny         | NE   | 3-7          |
| 99/06/23 0720 199904999 94/00433 L 0 4 17 sight fog NE 99/06/23 0725 199904902 94/00436 L 0 4 17 sight fog NE 99/06/23 0720 199904902 94/00436 L 0 17 sight fog NE 99/06/23 0730 199904902 94/00436 L 0 29 29 29 hazy, cloudy NW 99/07/18 1306 199906574 94/00524 L 0 29 29 29 hazy, cloudy NW 99/07/18 1306 199906574 94/00525 L 0 29 29 29 hazy, cloudy NW 99/07/18 1306 199906879 94/00525 L 0 0 5.8 20 high overcast NW 99/06/22 1220 199908879 94/00525 L 0 0 5.8 20 high overcast NE 99/06/22 1220 199908879 94/00527 L 0 0 5.8 20 high overcast NE 99/06/22 1056 199909309 94/00629 L 0 6.1 22 sunny N 99/06/29 1056 199909309 94/00699 L 0 6.1 22 sunny N 99/07/19 1427 19990669 94/00699 L 0 6.1 22 sunny N 99/07/19 1427 19990669 94/00690 L 0 6.1 22 high overcast NW 99/07/19 1437 99/06/240 L 0 6.5 5.5 22 high overcast NW 99/07/19 1432 199906699 94/00640 L 0 6.5 5.5 22 high overcast NW 99/07/19 1432 199906699 94/00640 L 0 6.5 5.5 22 high overcast NW 99/07/19 1432 199909309 94/00640 L 0 6.5 5.5 22 high overcast NW 99/07/19 1432 199909309 94/00640 L 0 6.5 5.5 22 high overcast NW 99/07/19 1432 199909309 94/00640 L 0 6.5 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00640 L 0 6.5 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00640 L 0 6.5 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00640 L 0 6.5 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00640 L 0 6.5 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00677 L 0 6 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00677 L 0 6 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00677 L 0 6 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00677 L 0 6 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00677 L 0 6 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00677 L 0 6 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00677 L 0 6 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00677 L 0 6 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00677 L 0 6 5.5 22 high overcast NW 99/07/19 1440 199909309 94/00677 L 0 6 5.5 22 High overcast NW 99/07/19 1440 19990940 |           | 99/08/22    | 1135     | 199908883  | 94/00626   | _     | 0       | 5.5                 | 8               | sunny         | NE   | 3-7          |
| 990/05/23 07/20 199904899 94/00434 L 0 4 17 alight fog NE 990/05/23 07/25 199904891 94/00434 L 0 4 17 alight fog NE 990/05/23 07/25 199904901 94/00436 L 0 01/7 4 17 alight fog NE 990/05/23 07/20 199904902 94/00436 L 0 01/7 4 17 alight fog NE 990/07/18 1306 1999065/1 94/005/23 L 0 2.9 29 hazy, cloudy NW 990/07/18 1306 1999065/1 94/005/26 0.0083 2.9 29 hazy, cloudy NW 990/07/18 1310 1999065/1 94/005/26 0.0083 2.9 29 hazy, cloudy NW 990/05/2 1210 1999068/1 94/005/26 0.0083 2.9 29 hazy, cloudy NW 990/05/2 1210 1999068/1 94/005/2 L 0 5.8 20 high overcast NE 99/08/2 1220 199908/1 94/005/2 L 0 6.1 22 aumny N 99/08/2 105/2 199908/20 94/006/2 L 0 6.1 22 aumny N 99/08/2 105/2 199908/20 94/006/2 L 0 6.1 22 aumny N 99/08/2 105/2 199908/20 94/006/2 L 0 6.1 22 aumny N 99/08/2 105/2 199908/20 94/006/2 L 0 6.1 22 aumny N 99/08/2 1440 199908/20 94/006/2 L 0 6.1 22 aumny N 99/08/2 1440 199908/20 94/006/2 L 0 6.1 22 aumny N 99/08/2 1440 199908/20 94/006/2 L 0 6.1 22 aumny N 99/08/2 1440 199908/20 94/006/2 L 0 6.1 22 aumny N 99/08/2 L 0 6.2 2 high overcast N 99/08/2 1440 199908/20 94/006/2 L 0 6.5 22 high overcast N 99/08/2 1440 199908/20 94/006/2 L 0 6.2 2 aumny N 99/08/2 1440 199908/20 94/006/2 L 0 6.2 2 aumny N 99/08/2 L 0 6 6 22 aumny N 9 6 22 aumny N 99/08/2 L 0 6 6 22 aumny N 9 6 22 aum |           |             |          |  |            |       |         |                     |                 |               | 1    |              |
| 99/06/23 0725 198904901 94/00434 L 0 4 17 silight fog NE 99/06/23 0730 198904902 94/00435 L 0 017 4 17 silight fog NE 99/06/23 0740 19890697 94/00435 L 0 2.9 2.9 2.9 hazy, cloudy NW 99/07/18 1300 19890657 94/00525 L 0 2.9 2.9 2.9 hazy, cloudy NW 99/07/18 1310 19890687 94/00526 0.0083 2.9 2.9 hazy, cloudy NW 99/07/18 1310 19890887 94/00526 0.0083 2.9 2.9 hazy, cloudy NW 99/08/22 1210 19890887 94/00526 0.0083 2.9 2.9 hazy, cloudy NW 99/08/22 1215 19890887 94/00526 L 0 0 5.8 20 high overcast NE 99/08/22 1220 19890887 94/00622 L 0 0 5.8 20 high overcast NE 99/08/22 1065 19890897 94/00687 L 0 0 6.1 22 summy N 99/08/22 1065 19890897 94/00689 L 0 0 6.1 22 summy N 99/08/22 1066 19890897 94/00689 L 0 0 6.1 22 summy N 99/08/22 1069 198908989 94/00689 L 0 0 6.1 22 summy N 99/08/22 1069 198908989 94/00689 L 0 0 6.1 22 summy N 99/08/22 1069 19890899 94/00689 L 0 0 6.1 22 summy N 99/08/22 1069 19890899 94/09/24 L 0 0 6.1 22 summy N 99/08/22 1069 19890899 94/09/24 L 0 0 6.1 22 Summy N 99/08/22 1069 19890899 94/09/24 L 0 0 6.1 22 Summy N 9 | VD2       | 99/06/23    | 0720     | 199904899  | 94/00433   | ad la | 0       | 4                   | 17              | slight fog    | W :  | 9 0          |
| 99/06/23         0730         199904901         94/00436         L         0         4         17         signt rog         NE           99/06/23         0740         199904902         94/00436         L         0         2.9         29         hazy, cloudy         NW           99/07/18         1306         199906574         94/00526         0.0063         2.9         29         hazy, cloudy         NW           99/07/18         1306         19990877         94/00526         0.0063         2.9         29         hazy, cloudy         NW           99/07/18         1316         19990877         94/00526         0.0063         2.9         29         hazy, cloudy         NW           99/02/22         1216         199908879         94/00621         0.015         5.8         20         high owercast         NE           99/02/22         1226         199908879         94/00622         L         0         6.1         22         29         high owercast         NE           99/02/29         1045         199908879         94/00622         L         0         6.1         22         29         high owercast         NK           99/02/29         1045         1045  |           | 99/06/23    | 0725     |  | 94/00434   |       | •       | 4                   | 17              | slight fog    | N N  | 2 0          |
| 99/06/23 0740 199904902 94/00436 0.017 4 17 alight fog NE 99/06/24 0.017 4 17 alight fog NE 99/07/18 1306 199906571 94/00524 0.017 2.9 2.9 19 hazy, cloudy NW 99/07/18 1306 199906574 94/00526 0.0083 2.9 2.9 hazy, cloudy NW 99/07/18 1310 199908877 94/00526 0.0083 2.9 2.9 hazy, cloudy NW 99/07/18 1310 199908877 94/00526 0.015 5.8 20 high overcast NE 99/08/22 1220 199908879 94/00622 L 0.015 5.8 20 high overcast NE 99/08/23 1056 199908307 94/00687 0.0054 6.1 22 sunny N 99/08/23 1056 199908307 94/00689 L 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00689 L 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/23 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/24 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/24 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/24 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/24 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/24 1056 199908309 94/00540 0.0054 6.1 22 sunny N 99/08/24 1056 199908309 94/00540 0.0054 6.1 22 22 piglio overcast N 99/08/24 1056 199908309 94/00540 0.0054 6.1 22 22 piglio overcast N 99/08/24 1056 199908309 94/08/24 1056 1056 1056 1056 1056 1056 1056 1056   |           | 99/06/23    | 0220     | 199904901  | 94/00435   |       | 0       | 4                   | 17              | Slight log    | N N  | 2            |
| 99/07/18 1300 199906571 94/00525 2.9 29 hazy, cloudy NW 99/07/18 1306 199906573 94/00526 2.9 29 hazy, cloudy NW 99/07/18 1306 199908574 94/00526 2.9 29 hazy, cloudy NW 99/07/18 1310 199908674 94/00526 2.0 2.9 29 hazy, cloudy NW 99/07/18 1310 199908674 94/00526 2.0 0.0063 2.9 29 hazy, cloudy NW 99/08/22 1215 199908679 94/00621 L 0.015 5.8 20 high overcast NE 99/08/22 1220 199908305 94/00686 L 0.015 5.8 20 high overcast NE 99/08/29 1045 199908307 94/00686 L 0.015 5.8 20 high overcast NE 99/08/29 1056 199908307 94/00689 L 0.0054 6.1 22 summy N 99/05/29 1056 199908307 94/00689 L 0.0054 6.1 22 summy N 99/05/29 1437 199908507 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1437 199908507 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908308 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.055 5.5 22 high overcast NW 99/07/10 144 |           | 99/06/23    | 0740     | 199904902  | 94/00436   |       | 0.017   | 4                   | 17              | slight fog    | N.   | 0-5          |
| 99/07/18 1308 1990/6573 94/00526 0.0083 2.9 29 hazy, cloudy NW 99/07/18 1306 1999/6574 94/00526 0.0083 2.9 29 hazy, cloudy NW 99/07/18 1306 1999/6874 94/00526 0.0083 2.9 29 hazy, cloudy NW 99/07/18 1306 1999/0877 94/00521 0.015 5.8 20 high overcast NE 99/08/22 1215 1999/08/29 94/00622 L 0.05 5.8 20 high overcast NE 99/08/29 1045 1999/08/30 94/006/20 L 0.05 5.8 20 high overcast NE 99/08/29 1045 1999/08/30 94/006/80 L 0.0054 6.1 22 summy N 99/08/30 1056 1999/08/30 94/006/40 L 0.05 6.1 22 summy N 99/07/19 1427 1999/08/30 94/005/40 L 0.05 6.1 22 summy N 99/07/19 1437 1999/08/30 94/005/40 L 0.05 5.5 22 high overcast NW 99/07/19 1437 1999/08/30 94/005/40 L 0.05 5.5 22 high overcast NW 99/07/19 1440 1999/08/30 94/005/40 L 0.05 5.5 22 high overcast NW 99/07/19 1440 1999/08/30 94/005/40 L 0.05 5.5 22 high overcast NW 99/07/19 1356 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1440 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1346 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1346 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1346 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1346 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1346 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1346 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1346 1999/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1346 1399/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1346 1399/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1346 1399/08/30 94/005/40 L 0.05 6.2 22 high overcast NW 99/07/19 1356 1356 1356 1356 1356 1356 1356 1356       |           |             | -        | *************  | COMMO      |       |         | 00                  | 90              | bear clouds   | MM   | 0.5          |
| 99/06/718 1305 199906573 94/00526 0.0083 2.9 29 hazy, cloudy NW 1305 199906574 94/00526 0.0083 2.9 29 hazy, cloudy NW 1305 199908879 94/00526 0.0083 2.9 29 hazy, cloudy NW 19900872 1215 199908879 94/00621 L 0 5.8 20 high overcast NE 99/08/22 1220 199908879 94/00622 L 0 5.8 20 high overcast NE 99/08/22 1056 199908879 94/00686 L 0 6.1 22 summy N 19900879 94/00689 L 0 6.1 22 summy N 19900879 94/00689 L 0 6.5 22 high overcast NW 99/07/19 1427 199908309 94/00540 L 0 6.5 22 high overcast NW 99/07/19 1437 199908309 94/00540 L 0 6.5 22 high overcast NW 99/07/19 1437 199908309 94/00540 L 0 6.5 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.5 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.5 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 NM 99/07/19 1440 199908309 94/00541 L 0 6.2 22 high overcast NW 99/07/19 NM 99/07/10 NM 99/07/10 NM 99/07/10 NM 99/07/10 NM 99/07/10 NM 99/07/10 NM  |           | 99/07/18    | 1300     | 1988065/1  | 94/00523   | •     | C       | 200                 | 2 %             | hazy, cloudy  | 200  | 5-0          |
| 99/07/18 1310 19990874 94/00526 0.0083 2.9 28 hazy, cloudy NW 99/07/19 1215 199908878 94/00522 L 0.015 5.8 20 high overcast NE 99/08/22 1225 199908878 94/00622 L 0.015 5.8 20 high overcast NE 99/08/22 1225 199908879 94/00622 L 0.05 5.8 20 high overcast NE 99/08/29 1065 199908307 94/00687 C 0.0054 C 1 22 summy N 99/08/29 1065 199908307 94/00689 L 0.05 C 1 22 summy N 99/08/29 1066 199908307 94/00689 L 0.05 C 1 22 summy N 99/08/29 1066 199908308 10068 1 0.0054 C 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |           | 98/0/18     | 1306     | 400000079  | 94/00024   | J     | >       | 200                 | 3 8             | hear, clouds  | MW   | 5.5          |
| ### 1990/6872   1210   1999/6877   94/00619   L   0   5.8   20   high overcast   NE   ### 1990/6877   94/00621   L   0   5.8   20   high overcast   NE   ### 1990/6879   94/00622   L   0   6.1   22   summy   N   ### 1990/6879   94/00689   L   0   6.1   22   summy   N   ### 1990/6879   94/00689   L   0   6.1   22   summy   N   ### 1990/6879   94/00689   L   0   6.1   22   summy   N   ### 1990/6879   94/00689   L   0   6.1   22   summy   N   ### 1990/6879   94/00689   L   0   6.1   22   summy   N   ### 1990/6879   94/00689   L   0   6.1   22   summy   N   ### 1990/6879   94/00640   L   0   6.5   22   high overcast   N/V   ### 1990/6879   94/00640   L   0   6.5   22   high overcast   N/V   ### 1990/6879   94/00640   L   0   6   22   summy   N/V   ### 1990/6879   94/00641   L   0   6   22   summy   N/V   ### 1990/6879   94/00641   L   0   6   22   summy   N/V   ### 1990/6879   94/00641   L   0   6   22   summy   N/V   ### 1990/6879   94/00641   L   0   6   22   summy   N/V   ### 1990/6879   94/00641   L   0   6   22   summy   N/V   ### 1990/6879   94/00641   L   0   6   22   summy   N/V   ### 1990/6879   94/00641   L   0   6   22   summy   N/V   ### 1990/6879   94/00641   L   0   6   22   summy   N/V   ### 1990/6879   94/00641   L   0   6   22   summy   N/V   ### 1990/6879   94/00641   L   0   6   22   summy   N/V   ### 1990/6879   94/00641   L   0   6   22   summy   N/V   ### 1990/6879   1440   1990/6879   1440 |           | 80000       | 300      | 198900013  | 94/00526   |       | 5 0003  | 2.0                 | 3 8             | hazy cloudy   | MM   | 0-2          |
| 99/09/22 1215 19990878 94/00621 L 0.015 5.8 20 high overcast NE 99/09/22 1215 19990878 94/00622 L 0.015 5.8 20 high overcast NE 99/09/22 1220 199908305 94/00686 L 0 6.1 22 summy N 89/09/29 1045 199908307 94/00688 L 0.0054 6.1 22 summy N 89/09/29 1056 199908307 94/00689 L 0.0054 6.1 22 summy N 89/09/29 1056 199908307 94/00689 L 0.0054 6.1 22 summy N 89/09/29 1056 199908308 94/00540 L 0 6.1 22 summy N 89/00/29 1437 199908507 94/00540 L 0 5.5 22 high overcast NW 99/07/19 1437 199908507 94/00540 L 0 5.5 22 high overcast NW 99/07/19 1440 199908308 94/00540 L 0 6.5 22 high overcast NW 99/07/19 1440 199908308 94/00540 L 0 6.5 22 high overcast NW 99/07/19 1355 139908309 94/00540 L 0 6.2 22 summy NWE 99/07/19 1355 139908309 94/00540 L 0 6.2 22 summy NWE 99/07/19 1355 135908309 94/00541 L 0 6.2 22 summy NWE 99/07/19 1355 1356 1348 199908309 94/00541 L 0 6.2 22 summy NWE   |           | SHOWE       | 1310     | 188800014  | 24/00328   |       | 2000    | 9                   | 2               | ine j. come j |      |              |
| 99/06/22 1215 19990878 94/00621 0.015 5.8 20 high overcast NE 99/06/22 1220 19990879 94/00622 L 0 5.8 20 high overcast NE 99/06/22 1220 19990879 94/00686 L 0 6.1 22 summy N 99/06/29 1055 199908307 94/00689 L 0.0054 6.1 22 summy N 99/06/29 1056 199908308 94/00689 L 0 6.1 22 summy N 99/06/29 1056 199908308 94/00689 L 0 6.1 22 summy N 99/07/19 1427 199908308 94/00540 L 0 5.5 22 high overcast NW 99/07/19 1437 199908507 94/00540 L 0 5.5 22 high overcast NW 99/07/19 1440 199908308 94/00540 L 0 6.5 22 high overcast NW 99/07/19 1355 199908308 94/00541 L 0 6 22 summy NW 99/09/29 1346 199908309 94/00541 L 0 6 22 summy NW NNE 99/08/29 1346 199908309 94/00571 L 0 6 22 summy NNE 99/09/29 1346 199908309 94/00571 L 0 6 22 summy NNE   |           | 99/06/22    | 1210     | 199906877  | 94/00619   | -0    | 0       | 5.8                 | 8               | high overcast | NE   | 9-0          |
| 99/06/72 1220 199908379 94/00622 L 0 5.8 20 high overcast NE 99/06/72 1045 199908305 94/00686 L 0 6.1 22 sunny N 99/08/29 1056 199908307 94/00689 L 0.0054 6.1 22 sunny N 99/06/29 1056 199908309 94/00689 L 0 6.1 22 sunny N 99/07/19 1427 199908309 94/00549 L 0 5.5 22 high overcast NW 99/07/19 1437 199908507 94/00540 L 0 5.5 22 high overcast NW 99/07/19 1432 199908309 94/00540 L 0 6.5 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0 6.5 22 sunny NW 99/07/19 1355 199908309 94/00573 L 0 6 22 sunny NW NNE 99/08/29 1346 199908309 94/00671 L 0 6 22 sunny NNE 99/08/29 1355 1355 1355 1355 1355 1355 1355 135   |           | 99/08/22    | 1215     | 199908878  | 94/00621   |       | 0.015   | 5.8                 | 8               | high overcast | NE   | 0-5          |
| 99/08/29 1045 199908305 94/00686 L 0 6.1 22 summy N 99/08/29 1056 199908307 94/00689 L 0.0054 6.1 22 summy N 99/08/29 1056 199908307 94/00689 L 0.0054 6.1 22 summy N 99/07/19 1427 199908309 94/00540 L 0 5.5 22 high overcast NVV 99/07/19 1437 199908309 94/00540 L 0.0054 5.5 22 high overcast NVV 99/07/19 1440 199908309 94/00541 L 0 6.5 22 summy NVV 99/07/19 1355 199908309 94/00571 L 0 6 22 summy NVE 99/07/19 1355 199908309 94/00571 L 0 6 22 summy NVE 99/07/19 1355 199908309 94/00571 L 0 6 22 summy NVE 99/08/24 1355 199908309 94/00571 L 0 6 22 summy NVE   |           | 99/08/22    | 1220     | 198908879  | 94/00622   | and I | 0       | 5.8                 | 8               | high overcast | NE   | 0-2          |
| 99/08/29 1045 199908305 94/00686 L 0 6.1 22 sunny N 6 99/08/29 1055 199908307 94/00689 L 0.0054 6.1 22 sunny N 6 99/08/29 1056 199908307 94/00689 L 0.0054 6.1 22 sunny N 6 99/07/19 1427 199908309 94/00540 L 0.055 6.1 22 sunny N 6 99/07/19 1437 199908679 L 0.0054 6.1 22 sunny N 6 99/07/19 1437 199908679 94/00540 L 0.055 22 high overcast NW 99/07/19 1440 199908309 94/00540 L 0.054 5.5 22 high overcast NW 99/07/19 1440 199908309 94/00541 L 0.054 5.5 22 sunny NW 99/08/29 1346 199908309 94/00571 L 0.054 5.5 22 sunny NW 6 99/08/29 1346 199908309 94/00571 L 0.057 6.2 sunny NWE 99/08/29 1346 199908309 94/00571 L 0.057 6.2 sunny NWE 99/08/29 1346 199908309 94/0671 L 0.057 6.2 sunny NWE 99/08/29 1346 199908309 94/0671 L 0.057 6.2 sunny NWE 99/08/29 1346 199908309 94/0671 L 0.057 6.2 sunny NWE 99/08/29 1346 199908309 94/0671 L 0.057 6.2 sunny NWE  |           |             |          |  |            |       |         |                     |                 |               |      |              |
| 99/08/29 1065 94/00687 0.0054 6.1 22 sunny N S 99/08/29 1050 199908307 94/00688 0.0054 6.1 22 sunny N S 99/08/29 1056 199908309 94/00689 L 0 0 6.1 22 sunny N S 99/07/19 14.27 19990669 94/00540 0.0054 5.5 22 high overcast NVV 99/07/19 14.37 199906671 94/00540 0.0054 5.5 22 high overcast NVV 99/07/19 14.40 199906672 94/00540 0.0054 5.5 22 high overcast NVV 99/07/19 14.40 199906672 94/00540 0.0054 5.5 22 high overcast NVV 99/07/19 14.40 199906672 94/00540 0.0054 5.5 22 high overcast NVV 99/07/19 13.55 199908309 94/00671 L 0 6 22 sunny NNE 99/08/29 13.55 199908309 94/00671 L 0 6 22 sunny NNE 99/08/29 13.55 199908309 94/00671 L 0 6 22 sunny NNE  | XTH       | 99/08/29    | 1045     | 199909305  | 94/00686   | uJ    | 0       | 6.1                 | 22              | sunny         | z    | 5-10         |
| 99/08/29         1050         199908307         94/00688         0.0054         6.1         22         sunny         N           99/08/29         1056         199908308         94/00689         L         0         6.1         22         sunny         N           99/07/19         1427         199908689         94/00539         L         0         5.5         22         high overcast         N/V           99/07/19         1437         94/00540         0.0064         5.5         22         high overcast         N/V           99/07/19         1440         19990672         94/00542         L         0         5.5         22         high overcast         N/V           99/07/19         1440         199908308         94/00542         L         0         5.5         22         high overcast         N/V           99/08/29         1346         199908308         94/00547         L         0         5.5         22         sunny         N/V           99/08/29         1346         199908308         94/00571         L         0         6         22         sunny         N/NE           99/08/29         1355         1356         10         6 <td< td=""><td></td><td>99/08/29</td><td>1065</td><td></td><td>94/00687</td><td></td><td></td><td>6.1</td><td>22</td><td>sunmy</td><td>Z</td><td>5-10</td></td<>   |           | 99/08/29    | 1065     |  | 94/00687   |       |         | 6.1                 | 22              | sunmy         | Z    | 5-10         |
| 99/06/29 1056 199908308 94/00649 L 0 6.1 22 sunny NV 99/07/19 1427 199908689 94/00540 5.5 22 high overcast NVV 99/07/19 1437 199908671 94/00540 5.5 22 high overcast NVV 99/07/19 1440 199908671 94/00541 L 0 6.5 22 high overcast NVV 99/07/19 1440 199908308 94/00541 L 0 6 22 sunny NNE 99/08/29 1348 199908308 94/00571 L 0 6 22 sunny NNE 99/08/29 1355 19990831 G 94/00573 L 0 6 22 sunny NNE  |           | 99,080,29   | 1050     | 199909307  | 94/00688   |       | 0.0054  | 6.1                 | 22              | sunny         | Z    | 5-10         |
| 99/07/19 1427 199906699 94/00538 L 0 5.5 22 high overcast NVV 99/07/19 1432 199906671 94/005401 0.0064 5.5 22 high overcast NVV 99/07/19 1432 199906671 94/005401 0.0064 5.5 22 high overcast NVV 99/07/19 1440 199906672 94/00542 L 0 5.5 22 high overcast NVV 99/07/19 1369 199908309 94/00571 L 0 6 5.5 22 sunny NNE 99/08/29 1346 199908309 94/00571 L 0 6 22 sunny NNE 99/08/29 1366 199908301 94/00673 L 0 6 22 sunny NNE  |           | 99/06/29    | 1056     | 199909308  | 94/00689   | -     | 0       | 6.1                 | 23              | Auuns         | Z    | 5-10         |
| 99/07/19 1437 1999/06540 0.0064 5.5 22 high overcast NVV 99/07/19 1430 1999/06671 94/00540 0.0064 5.5 22 high overcast NVV 99/07/19 1440 1999/06672 94/00542 L 0 0 5.5 22 high overcast NVV 99/07/19 1440 1999/08073 L 0 0 5.5 22 high overcast NVV 99/08/29 1346 1999/08073 L 0 0 6 22 surriy NNE 99/08/29 1356 1999/08073 L 0 6 22 surriy NNE 0.00673 L 0 6 22 surriy NNE  | 4.474.4   | 90,7719     | 1001     | 199906660  | 94/00539   |       | 0       | 50                  | 22              | high overcast | WW   | 9-8          |
| 1432 199906671 94005401 0.0064 5.5 22 high overcast NVV<br>1440 199906002 9400542 L 0 5.5 22 high overcast NVV<br>1346 19990309 94/00671 L 0 6 22 summy NNE<br>1366 199909310 94/00673 L 0 6 22 summy NNE  |           | 0000000     | 1437     |  | 94/00540   | 1     |         | 50                  | 2               | high overcast | NN   | 0.5          |
| 1440 198906672 94/00542 L 0 5.5 22 high overcast NVV 1346 199906309 94/00671 L 0 6 22 summy NNE 1355 199909310 94/00673 L 0 6 22 summy NNE 1355 199909314 19 |           | 99/2/19     | 1430     | 100000471  | Q4/DDS401  |       | 0 0064  | 55.55               | 12              | high overcast | NN   | 9-0          |
| 1346 199909308 94/00671 L 0 6 22 summy NNE 1365 199909313 L 0 6 22 summy NNE 1365 199909314 94/00673 L 0 6 22 summy NNE  |           | STORE STORE | 2000     | 1000000  | OAMONA?    | -     | 0       | 4                   | 18              | high overcast | MM   | 0-8          |
| 1346 199909309 94/00671 L 0 6 22 summy NNE 1365 199909310 94/00673 L 0 6 22 summy NNE 1365 199909314 04/00673 L 0 6 22 summy NNE   |           | 98/07/19    | 1440     | 138300017  | 34000345   | ٠     | 0       | 0.0                 | 1               |               |      |              |
| 1366 199909310 94/00673 L 0 6 22 sunny NNE   |           | 99/08/29    | 1348     | 199909309  | 94/00671   | -1    | 0       | 9                   | 2               | sunux         | NNE  | 5-10         |
| ATER ADDOCUMENT OF THE NAME OF THE SUMMY NINE  |           | OCUMUNO DO  | 1366     | 199909310  | 94/00673   | _     | 0       | 9                   | 22              | sunny         | NNE  | 5-10         |
| The same of the sa |           | 200000      | and a    | The second secon | -          | į     |         |                     |                 |               |      |              |

L = below limit of quantification. Q  $\approx$  not a quality assured parameter. T = trace.

Appendix Sc. Test method references.

Laboratory method references (New Brunswick Department of the Environment, 1999).

| F. E. coli F. Fluoride F. Fluoride F. Fluoride F. F. Fluoride F. F. Fluoride F. F. Fluoride F. F. Fluoride Magnesium M. Manganese Manganese Na Sodium NH3 Annmonia NH3 Annmonia NI Nickel NO3-D Nitrate NO2-D Nitrate  | Parameter | Instrument/Method Reference   | Limit of   | Parameter           | Instrument/Method Reference   |
|--|-----------|---|------------|---------------------|---|
| Inductively Coupled Plasma - Mass   1.5 /eg/l     Auto-Gran's Titration PH 4.5 (Std.   |           | Inductively Coupled Plasma - Mass<br>Spectrometer (EPA 200.8)         | 0.001 mg/l | E. coli             | Colifert method<br>APHA 9221C   |
| Auto-Gran's Titration PH 4.5 (Std.  Methods 18th ed., 2320.B)  Inductively Coupled Plasma (EPA 200.7)  Inductively Coupled Plasma - Mass  Spectrometer (EPA 200.8)  Wanganese  Visual Comparison method (Std. Methods  Visual Comparison  Visual |           | Inductively Coupled Plasma - Mass<br>Spectrometer (EPA 200.8)         | 1.5 µg/l   | F<br>Fluoride       | F-ion Selective Electrode Radimoeter-<br>automated (Std. Methods 17th ed. 450 |
| Inductively Coupled Plasma - Mass Spectrometer (EPA 200.8) Inductively Coupled Plasma - Mass Spectrometer (EPA 200.8) Inductively Coupled Plasma - Mass Spectrometer (EPA 200.8) Combustion and NDIR Inductively Coupled Plasma - Mass Spectrometer (EPA 200.8) Combustion and NDIR Inductively Coupled Plasma - Mass Spectrometer (EPA 200.8) Nitrate NO2-D Nitrate   |           | Auto-Gran's Titration PH 4.5 (Std. Methods 18th ed., 2320.B)          | ı          | 34.                 | Inductively Coupled Plasma (EPA 200   |
| Inductively Coupled Plasma - Mass  Spectrometer (EPA 200.8)  HP Diode Array Spectrophotometry (Std. Methods 17th ed., 10200H)  (Std. Methods 17th ed., 2120B)  Conductively Coupled Plasma - Mass  Conductively Coupled Plasma - Mass  Combustion and NDIR  Inductively Coupled Plasma - Mass  In |           | Inductively Coupled Plasma (EPA 200.7)                                | 0.100 mg/l | HARD                | Calculated (Std. Methods 18th ed.)  |
| HP Diode Array Spectrophotometry 0.5mg/l MG  (Std. Methods 17th ed., 10200H)  (Std. Methods 19th ed., 4110B)  (Std. Methods 19th ed., 2120B)  17th ed., 2120B)  Conductivity Meter - Radiometer CDM 83  Conductively Coupled Plasma - Mass  Spectrometer (EPA 200.8)  Combustion and NDIR  (Combustion and NDIR  (Co |           | Inductively Coupled Plasma - Mass<br>Spectrometer (EPA 200.8)         | 0.1 ,cg/l  | K<br>K<br>Potassium | Inductively Coupled Plasma - Mass<br>Spectrometer (EPA 200.7)                 |
| Combustion and NDIR   Combustion and NDIR     Conductively Combustion and NDIR   | -         | HP Diode Array Spectrophotometry<br>(Std. Methods 17th ed., 10200H)   | 0.5mg/l    | MG                  | Inductively Coupled Plasma (EPA 200   |
| Visual Comparison method (Std. Methods 17th ed., 2120B)  Conductivity Meter - Radiometer CDM 83 Sodium  Conductively Coupled Plasma - Mass 0.0005mg/l Inductively Coupled Plasma - Mass 0.0005mg/l Nickel Spectrometer (EPA 200.8)  Combustion and NDIR 1.0 mg/l Nitrate   |           | lon Chromatography<br>(Std. Methods 19th ed., 4110B)                  | 0.050 mg/l | MN                  | Inductively Coupled Plasma (EPA 200   |
| Conductivity Meter - Radiometer CDM 83 NH3 (Std. Methods 17th cd., 2510B)  Inductively Coupled Plasma - Mass Spectrometer (EPA 200.8) Inductively Coupled Plasma - Mass O.0005mg/l Nickel Spectrometer (EPA 200.8) Combustion and NDIR NO3-D Nitrate   | (Ju       | Visual Comparison method (Std. Methods 17th od., 2120B)               | 0          | Nanganese           | Inductively Coupled Plasma  |
| Inductively Coupled Plasma - Mass 0.0005mg/l Spectrometer (EPA 200.8)  Inductively Coupled Plasma - Mass 0.0005mg/l Nickel Spectrometer (EPA 200.8)  Combustion and NDIR 1.0 mg/l Nicrite NO2-D Nicrite  |           | Conductivity Meter - Radiometer CDM 83 (Std. Methods 17th ed., 2510B) | 1          | NH3                 | Auto Analyzer II Automatic Phenate  |
| Spectrometer (EPA 200.8) Inductively Coupled Plasma - Mass 0.0005mg/l Nickel Spectrometer (EPA 200.8) Combustion and NDIR 1.0 mg/l Nitrate   |           | Inductively Coupled Plasma - Mass                                     | 0.0005mg/l | Ammonia             | H)  |
| Spectrometer (EPA 200.8)  Combustion and NDIR  1.0 mg/l  NO2-D  Nitrate  |           | Spectrometer (EPA 200.8) Inductively Coupled Plasma - Mass            | 0.0005mg/l | NI<br>Nickel        | Inductively Coupled Plasma - Mass<br>Spectrometer (EPA 200.8)                 |
| NO2-D Nitrate  |           | Spectrometer (EPA 200.8)  | 1.0 me/l   | NO3-D<br>Nirric     | Calculated (Std. Methods 18th ed.)  |
|  |           | Collination and Collination   | ,          | NO2-D<br>Nitrate    | Technicon Auto Analyzer II, Colorimo  |

| Parameter        | Instrument/Method Reference   | Limit of<br>quantitation |  |
|------------------|---|--------------------------|--|
| E. coli          | Colilert method<br>APHA 9221C   | MPN/100ml                |  |
| Fluoride         | F-ion Selective Electrode Radimoeter-<br>automated (Std. Methods 17th ed. 4500-F-<br>C) | 0.100 mg/l               |  |
| FE               | Inductively Coupled Plasma (EPA 200.7)  | 0.050 mg/l               |  |
| HARD<br>Hardness | Calculated (Std. Methods 18th ed.)  | L.Smg/l                  |  |
| K<br>Potassium   | Inductively Coupled Plasma - Mass<br>Spectrometer (EPA 200.7)                           | 0.10 mg/l                |  |
| MG<br>Magnesium  | Inductively Coupled Plasma (EPA 200.7)  | 0.200 mg/l               |  |
| MN<br>Manganese  | Inductively Coupled Plasma (EPA 200.8)  | 0.005 mg/l               |  |
| Na<br>Sodium     | Inductively Coupled Plasma<br>EPA 200.7   | 0.200 mg/l               |  |
| NH3<br>Ammonia   | Auto Analyzer II Automatic Phenate<br>Method (Std Methods 17th ed., 4500-NH3<br>H)      | 0.01 mg/l                |  |
| NI<br>Nickel     | Inductively Coupled Plasma - Mass<br>Spectrometer (EPA 200.8)                           | 0.005 mg/l               |  |
| NO3-D<br>Nitrite | Calculated (Std. Methods 18th ed.)  | 0.05 mg/l                |  |
| NO2-D<br>Nitrate | Technicon Auto Analyzer II, Colorimetric  | 0.05 mg/l                |  |

Field instrument references (St. Croix International Waterway Commission, 1999)

| Parameter        | Instrument   | Limit of quantitation |
|------------------|--|-----------------------|
| Dissolved oxygen | Dissolved oxygen YSI Model 57 or Model 80                              | 0.1mg/l               |
| Temperature      | YSI Model 57 or 80, Enviro-Safe<br>Thermometer                         | ± 0.2°C               |
| Seechi           | Standard disk, fiberglass metric tape,<br>Maine Model II viewing scope | 0.05m                 |

| Parameter                         | Instrument/Method Reference  | Limit of quantitation |
|-----------------------------------|--|-----------------------|
| NOX<br>Nitrite & Nitrate          | Technicon Auto Analyzer II Automated<br>Cadmium Reduction Method (Std.<br>Methods 17th ed., 4500-NO3-F)) | 0.05 mg/l             |
| PB<br>Lcad                        | Inductively Coupled Plasma - Mass<br>Spectrometer (EPA 200.8)  | 0.001mg/l             |
| pH                                | Hydrogen Specific Radiometer Automated (APHA 2320.B)   | 1                     |
| SB<br>Antimony                    | Inductively Coupled Plasma - Mass<br>Spectrometer (EPA 200.8)  | 1.0mg/l               |
| SO4<br>Sulphate                   | Ion Chromatography<br>(Std. Methods 19th od.,)   | 0.050 mg/l            |
| SS (TSS)<br>Suspended solids      | Gravimetric - 934-AH Filter Paper,<br>Microwave Dried  | 15.0 mg/l             |
| TP-L<br>Total phosphorus          | Technicon Auto Analyzer II-Auto UV<br>Digestion  | 0.005 mg/l            |
| Turb<br>Turbidity                 | Nephelometic Method (Std. Methods 17th ed., 2130B)   | O. NTU                |
| TKN<br>Total Kjeldahl<br>Nitrogen | Technicon Auto Analyzer II Technicon<br>(Method No 329-74 W/B)   | 0.2 mg/l              |
| ZN                                | Inductively Coupled Plasma - Mass<br>Spectrometer (EPA 200.8)  | 0.005 mg/l            |

## Appendix 6. Partial list of interests consulted in St. Croix Water Classification proposal development

Algonquin Hotel

Chiputneticook Lakes International Conservancy

City of Calais (ME)

Conservation Council of New Brunswick

**Ducks Unlimited Canada** 

**Environment Canada** 

Flakeboard Company Ltd.

Freewest Resources Canada Ltd

Georgia-Pacific Corporation

H. J. Crabbe & Sons Ltd

International Joint Commission St. Croix Advisory Board on Pollution Control

J. D. Irving Ltd

Local farm members of the N B. Federation of Agriculture

Local Service District Advisory Committees for North Lake, St. David's Ridge and Bayside

Local residents from these St. Croix communities: Bayside, Canterbury, DeWolfe, Forest City, Fosterville,

Green Mountain, Little Ridge, Lynnfield, McAdam, Mohannes, Moores Mills, North Lake, Oak Haven, Oak Hill, Oak Mountain, St. Andrews, St. Stephen, Scotch Ridge, Skiff Lake, Upper Mills and Waweig

Maritimes & Northeast Pipeline Ltd

Members of the New Brunswick Legislative Assembly for Western Charlotte, Woodstock and York

Nature Trust of New Brunswick

N.B. Agriculture Council

N B Department of the Environment

N.B. Department of Natural Resources & Energy

N.B. Department of Transportation

N.B Prospectors & Developers Association

Maine Department of Environmental Protection

St. Anne-Nackawic Pulp Company Ltd.

St Croix Estuary Project

Skiff Lake Cottage Owners Association

SWP Industries Inc.

Town of St. Andrews

Town of Bailevville (ME)

Town of St. Stephen

Village of McAdam

Woodchem Canada Ltd.

York/Sunbury/Charlotte Forest Products Marketing Board

Appendix 7. St. Croix waters not proposed for preliminary Class A or AL status at March 2000.

| Water         | Section                           | Purpose                            |
|---------------|-----------------------------------|------------------------------------|
| tershed       | All waters above Maxwell Crossing | St. Stephen municipal water supply |
| inalument ake | All waters                        | St. Andrews municipal water supply |
|               | Limphurmore   ake to rail line    | St. Andrews municipal water supply |

Class B or C: Good or Acceptable Waters

| Water  | Section  | Now meets<br>criteria for<br>this Class | Criteria affected                       | Proposed<br>Preliminary<br>Class | Suggested Action Plan Summary<br>& Time Frame  |
|--|--|---|---|----------------------------------|--|
|  | Woodland Flowage   | В                                       | habitat                                 | to be studied                    | New Brunswick to resolve classification jointly with Maine. By: 2003.                                  |
| St. Croix River                              | Woodland dam to Milltown dam                               | В                                       | water chemistry                         | to be studied                    | New Brunswick to resolve classification jointly with Maine. By 2003.                                   |
|  | Milltown dam to Spruce Point                               | B to C-                                 | bacteria, water<br>chemistry, habitat   | C                                | Use paved surface BMPs, by 2005.<br>Upgrade town wastewater system to reduce bacteria levels, by 2010. |
| Unnamed Brook.                               | McAdam wastewater treatment<br>plant discharge to mouth    | J                                       | bacteria, water<br>chemistry            | C                                | Continue good operation of treatment plant. Ongoing.   |
| Strachan Brook<br>Composite<br>sub-watershed | All waters except as noted on<br>Tan House & Doodle Brooks | A to B                                  | habitat, potentially<br>water chemistry | B                                | Apply BMPs to future development. As unarranted.   |
| Doodle Brook                                 | Source to Bell Subdivision                                 | A to C                                  | habitat                                 | В                                | Stream cleanup; culvert replacement, shore buffers, BMP plan for future impacts. By 2002.              |
|  | Bell Subdivision to mouth                                  | BIOC                                    | water chemistry,<br>habitat             | 3                                | BMP plan to manage storm drain, residential & rail impacts. By 2003.                                   |

| Water           | Section  | Now meets<br>criteria for<br>this Class | Criteria affected                     | Proposed<br>Preliminary<br>Class | Suggested Action Plan Summary  |
|-----------------|--|---|---------------------------------------|----------------------------------|--|
| Ton House Brook | St. Stephen Drive to Milltown treatment plant                  | B to C-                                 | water chemistry.<br>habitat           | ی                                | Redirect dump leachate to town wastewater treatment system. By 2010.   |
|                 | Militown treatment plant to                                    | B to C-                                 | bacteria, water<br>chemistry          | 3                                | Upgrade town wastewater system to eliminate by-passing. By 2010.   |
| Rilly Weston    | St. Stephen Drive (soon new<br>Hielway #1) to Brook St.        | AtoB                                    | habitat                               | В                                | Apply BMPs to future development. As warranted.  |
| Brook           | Brook St. to mouth   | B to C.                                 | bacteria, water<br>chemistry, habitat | J                                | Multi-source BMP plan, bacteria source identification & correction. By 2002.   |
| Dennis Stream   | Billy Weston Brook to mouth                                    | В                                       | bacteria, water<br>chemistry          | В                                | Manage uses to maintain high quality for fish populations. As warranted. [See also Billy Weston Brook actions, which affect this Dennis Stream segment]            |
| Meadow Brook    | Trailer park treatment plant outfall to 200m below Old Bay Rd. | A to C                                  | bacteria, habitat                     | В                                | Explore options to upgrade wastewater system to reduce bacteria <i>und or</i> create mixing zone; apply paved surface BMPs & shore buffers below highway. By 2003. |
| Benson's Corner | Highway I to mouth   | B to C-                                 | bacteria, water<br>chemistry. habitat | В                                | Restore stream at feedlot; stream cleanup and shore buffers. By 2002.  |
| Park Brook      | Oak Bay Park treatment plant outfall to mouth                  | A to C<br>(seasonal)                    | bacteria, water<br>chemistry          | J                                | Maintain recent improvements to treatment plant to minimize bacteria discharge to clain flats. Origonig.   |
| Waweig River    | Sub-watershed  | A to B                                  | bacteria, water<br>chemistry, habitat | to be studied                    | Additional classification study, by 2001. BMP plan for road, residential and agriculture impacts, shore buffers. by 2003.  |
| Pottery Creek   | North branch   | B to C-                                 | water chemistry,                      | 20                               | Restore stream bed, add shore buffers, reducemakeup discharge water. By 2003.  |

These are a few of many sources of information on nonpoint source pollution and best management practices, listed in alphabetical order:

### Center for Watershed Protection

Books and videos on a wide range of planning and action subjects related to NPS and BMPs.

address 8391 Main St., Ellicott City, MD 21043 USA

sel 410-461-8323 fax 410-461-8324 web www.cwp.org

# Eastern Canada Soil & Water Conservation Centre

Agriculture soil conservation and BMP publications available on the web.

address 1010 chemin de l'Église, DSL Saint André, Grand Falls, NB E3Y 2X9

tel 506-475-4040 fax 506-475-4030 web www.ccse-swcc.nb.ca

## Farm\*A\*Syst/Home\*A\*Syst

Pollution assessment and prevention information via publications, newsletter and on-line materials, covering water and other pollution. Two approaches, for farmers and homeowners.

address 303 Hiram Smith Hall, 1545 Observatory Drive, Madison, WI 53706 USA tel 608-262-0024 web www.wisc.edu/farmasyst/index.html

### **Fundy Model Forest**

Video and information on forestry BMPs.

address 181 Aiton Rd., Sussex East, NB E4G 2V5 tel 506-432-2800 fax 506-432-2807 web www.fundymodelforest.net

### Maine Nonpoint Source Training & Resource Center

An impressive range of fact sheets, publications and video rentals on all aspects of NPS and BMPs for homeowners, contractors, municipal officials and others. Training workshops in spring and fall.

address c/o ME Dept. Environmental Protection, 17 State House Station, Augusta, ME 04333 USA tel 207-287-7726 fax 207-287-7191 web janus.state.me.us/dep/blwq/training/nps.htm

#### NEMO at UConn Extension

Good, user-friendly information on NPS and BMPs for municipal officials and others. Many project examples from local communities.

address Nonpoint Education for Municipal Officials (NEMO), c/o UConn Cooperative Extension System, P. O. Box 70, Haddam, CT 06438-0070 USA

tel 860-345-4511 fax 860-345-3357 web www.lib.uconn.edu/CANR/ces/nemo.index.html

# N.B. Department of Natural Resources & Energy

Two publications with BMP how-tos for forestry activities (Forest Management Manual and Buffer Zone Guidelines), obtainable through district ranger offices and regional wood marketing boards. Check a local phone book for the nearest source or contact:

address: Forest Management Branch, Dept. Natural Resources & Energy, Box 6000, Fredericton, NB E3B 5H1

#### N.B. Department of Environment & Local Government

Literature reviews/summaries of BMPs for agriculture and forestry.

address: Environmental Planning Section, NB Dept. of the Environment, Box 6000, Fredericton, NB E3B 5H1

tel 506-457-4846 fax 506-457-7823 email outreach.and.partnering@gov.nb.ca

# Nonpoint Source News-Notes

An extensive (and free) monthly US publication on NPS/BMP projects, legislation, education, research, etc. Issues also available on the web.

address c/o Terrene Institute, 4 Herbert St., Alexandria, VA 22305 USA web www.epa.gov/owow/info/NewsNotes/index.html

## US EPA Nonpoint Source Pollution Control Program

Basic information, fact sheets, contacts, publications, BMP examples, access to other EPA programs.

address Office of Water, US EPA, 1200 Pennsylvania Avenue NW, Washington, DC 20460 USA web (different best ways to contact depending upon your interest...)

for basic information on NPS and contacts: www.eng.vt.edu/bse/swcs/NPSindex.html for NPS publications and BMP examples: www.epa.gov/owow/NPS/education.html for information on all EPA water programs: www.epa.gov/owow/index.html

## WATERSHEDSS (Water, Soil, and Hydro-Environmental Decision Support System)

BMP information and manuals for a wide range of activities, available free on the web.

address NCSU Water Quality Group, Dept. of Agricultural & Extension Education, North Carolina State University, 120 Ricks Hall, Box 7607, Raleigh, NC 27695-7607 USA

1el 919-515-2707 fax 919-515-1965 web h2osparc.wq.ncsu.edu/info/bmps.html